

AMERICAN ARTISAN

SEPTEMBER 1959

Single copy price 60c

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• • The Magazine of
CENTRAL RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING • SHEET METAL CONTRACTING

**"AGED" COPPER PANELS on new
church testify to sheet metal's
position in modern architecture**

. . . see page 58



**"FINEST REGISTER I'VE EVER INSTALLED
— FOR HEATING OR COOLING"**

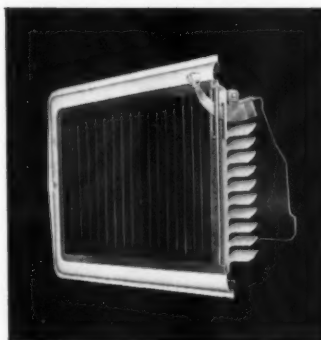
Robert Bass, president of Robert Bass Air Conditioning and Heating, LaGrange Georgia, visits a customer's home.

Why Robert Bass — and his customers — like Air Control's No. 20 Register

LaGrange, Georgia, boasts a lot of fine new homes. And Robert Bass does a thriving business in year 'round heating and cooling.

"Most of my jobs call for quality," he reports, "so I install a lot of Air Control No. 20 Registers. I get a perfect, fan-shaped air pattern with plenty of volume for both heating and cooling. It's a snap to adjust the air pattern up or down for seasonal requirements. And, of course, my customers are *always* pleased with the way that two-tone finish blends in any room. I consider it the finest register I've ever installed — bar none."

Many homes in *your* area require this same combination of top-quality performance and harmonizing eye-appeal. Shouldn't you be installing Air Control No. 20 Registers, too?



ONLY AIR CONTROL No. 20 REGISTER OFFERS ALL THESE FEATURES:

- Adjustable front fins
- Adjustable back fins
- Balancing damper that does not change the air pattern, regardless of setting
- Superb styling — beautiful two-tone finish

159 Center Street



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Air Control
PRODUCTS, INC.

Coopersville, Michigan



In Canada: LEE METAL PRODUCTS LTD., 72 York St., London, Ontario



Assure Customer Satisfaction With Sundstrand Certified Service

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wherever Sundstrand-equipped oil burners go across the nation, you are assured of quick, easy, economical service that contributes materially to customer satisfaction. Heating contractors, as well as oil burner manufacturers, have come to know that the combination of original quality and certified service, available only from Sundstrand, is the best insurance for continued heating comfort. It's no accident that year after year Sundstrand remains *first in fuel units*.



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(formerly Sundstrand Hydraulic Division, Sundstrand Machine Tool Co.)

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AMERICAN ARTISAN

... The Magazine of

CENTRAL RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING

SEPTEMBER 1959

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NEW

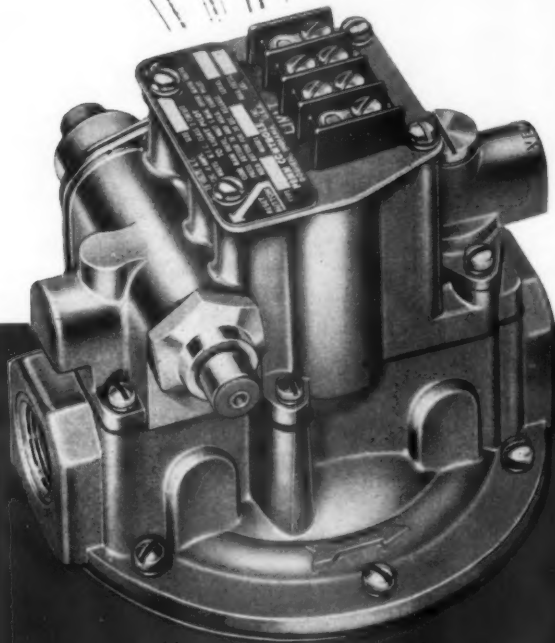
Penn Diaphragm GAS VALVES with today's top features!

Here's a line of compact, sturdy gas valves unsurpassed by any other brand.

Just look at these most-wanted features... extra high capacity... quiet, trouble-free operation... positive acting... specially-molded, highly-flexible diaphragm assures accurate valve action and long life in all gases... and, the line is approved by all major agencies!

Don't settle for a gas valve "almost as good"... specify and use Penn. And, remember, Penn heating controls deliver the kind of performance that creates better-satisfied customers. For convincing proof...

Try Penn on your next job!



Series 9000 combination diaphragm gas valve, automatic pilot and regulator. Convenient terminal block eliminates junction box, simplifies and reduces wiring cost. Available in 100% shut-off. Easily converted from L.P. to natural gas. Sizes, $\frac{1}{2}$ " small, $\frac{1}{2}$ " large and $\frac{3}{4}$ " with or without manual opening and electric reset.



Series 9100 diaphragm gas valve opens immediately to full flow...no click, no hum. Available with manual opening and electric reset. Eight sizes from $\frac{1}{2}$ " to 3".

PENN CONTROLS, INC.

Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

the editor's notebook

Thumbing Through This Month's Artisan

... we visit a new architectural landmark in Denver to see how an *Artificial Patina "Ages" Walls on Copper-Sheathed Church*. We recognize the impressive structure, with its mellow blue-green corrugated copper panels, as a permanent tribute to the architectural versatility of sheet metal. We are equally impressed with the special corrugating dies, lap joints and battens developed for this particular job by the sheet metal contractor, and we pick up a few ideas about fabricating fascia, coping, column caps, scuppers, downspouts and flashing from this on-the-spot report.

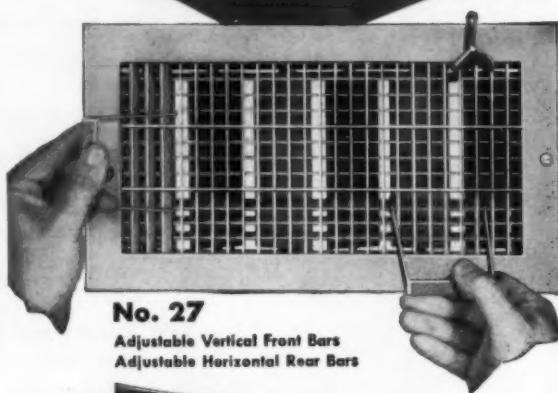
Price

... we diagnose a serious problem with Richard W. Friday, prominent dealer-contractor, who gives us his *Prescription for Sales Problems: Say NO to Cut Price Jobs*, by way of a case history report. We stand by as several salesmen call on a price-shopping prospect who insists he wants only a furnace to replace his expired gravity unit, and doesn't care to hear about extras. We hear him haggle with a couple of competing salesmen and beat their prices down to rock bottom. Just as we begin to wonder what's wrong with our industry, along comes Salesman Brown, who won't be browbeaten into selling anything short of a quality system. We watch him make layouts, to the tune of a tirade from Mrs. Prospect, and we watch him skillfully unfold the story of quality and comfort when he returns with his estimate. We see him stand firm on his company's reputation and we

INDEPENDENT

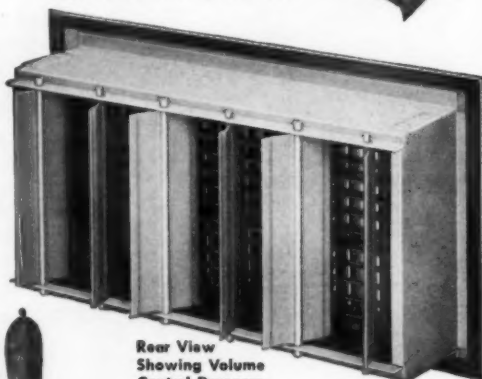
"Fabricated"
REG. U. S. PAT. OFFICE

DOUBLE CORE REGISTERS
with opposed blade dampers
key control
for Commercial Installations



No. 27

Adjustable Vertical Front Bars
Adjustable Horizontal Rear Bars



Rear View
Showing Volume
Control Dampers

Write for Catalog
No. 58 which gives
complete details and sizes
up to 48" x 24"

Always leading—Always Progressing



**THE INDEPENDENT
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

the editor's notebook

(Continued)

aren't surprised when he closes the sale before all the bids are in—for much more than his competitors' bids.

Service

... and we accept S. W. Reid's invitation: *Let's Answer an Air Conditioning Service Call* with a skilled technician who applies systematic trouble-shooting procedures to solve a perplexing problem in short order. We read the brief note on the job ticket: "A.C. ran all night but therm. in l.r. read 83 at 8 a.m.," and watch approvingly as the serviceman eliminates the possible trouble sources one by one until he pins the blame on a compressor suction valve. We are impressed mainly with the orderly procedure this mechanic follows to wrap up a service call in far less time than would have been consumed in a more haphazard check. We are also delighted with the serviceman's awareness of the importance of making a good impression on customers.

Heaters

... and we investigate 56 service calls to correct heating system troubles in gasoline filling stations, to determine *How to Keep Horizontal Furnaces Dependable* in these and similar applications. We find that in about 80 percent of the surveyed cases, supply registers hadn't been adjusted, and in many installations evidence stands out that manufacturers' installation instructions weren't followed. We find also that operators of the filling stations were inadvertently abusing the systems by piling merchandise in front of registers, etc. We

make more
profit on
heavy gauge
work
with

LOCKFORMER

models 16 and 18!

***Roll up to 45 feet of
Pittsburgh Lock per minute
on 16 through 22 gauge stock***

If you want a real work horse for heavy gauge lockforming jobs, check the performance of Lockformer Models 16 and 18. Heavy-duty motors pack plenty of reserve power. Instead of tying up several men, you can count on 40 or 45 feet of Pittsburgh Lock *every minute* with only one man and a Lockformer on the job.

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TODAY AND FIND OUT
HOW A LOCKFORMER CAN
HELP YOUR SHOP LOWER
PRODUCTION COSTS AND
INCREASE PROFITS ON ALMOST
ANY JOB!

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4615 West Roosevelt Rd., Chicago 50, Ill.
In Canada: Brown Boggs Foundry & Machine Co., Ltd.,
Hamilton, Ontario



A rugged 3 H.P. motor on the Model 16 and a 2 H.P. unit on the 18 assure continuous fast production on all stock, 16 through 22 gauge. Added to this, you get all the time-saving, shop-proved Lockformer features that cut sheet metal fabrication costs to a minimum.

For versatility, the Lockformer just can't be beat. You can handle a wide range of lockforming jobs simply by using auxiliary rolls on the extended shafts. Or, for other operations—slitting, flanging, etc.—you can add low-cost attachments that will double or treble your Lockformer's money-making potential.

THE LOCKFORMER COMPANY
Dept. A, 4615 West Roosevelt Road, Chicago 50, Illinois

Please send me latest Lockformer sheet metal machinery catalog.

Name _____

Address _____

City _____ Zone _____ State _____



the editor's notebook

(Continued)

analyze the complaints and find solutions to pass along to installers and operators which will keep the normally-efficient overhead heaters out of trouble.

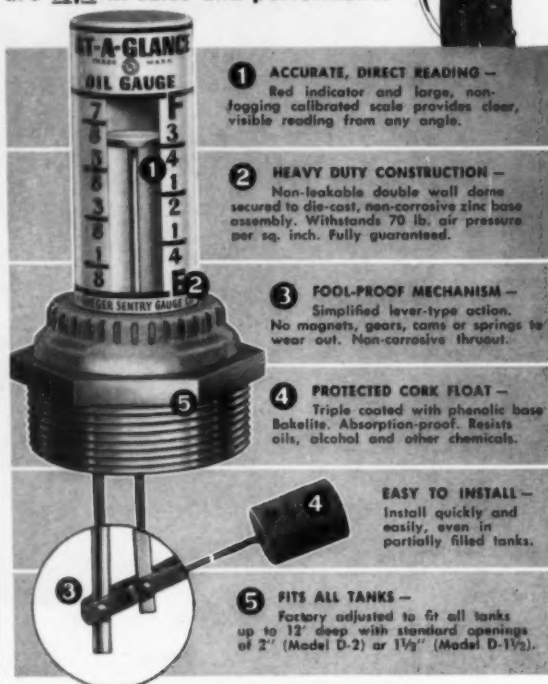
Advises Against Mixing Metals on Gutter Jobs

THE ROOF Drainage Institute advises against the mixing of metals when installing gutters and downspouts. It points out that the use of two or more unlike metals sometimes creates a galvanic action that may quickly and mysteriously deteriorate the equipment. This is caused by an electrolytic current being conducted between the two unlike metals when they are exposed to water and ultimately one or both of the metals will break down and cause leaks in the drainage system. This point can often be reviewed with employees because sometimes in their anxiety to complete a job they are careless in selecting the right components from the stock they have in their trucks.

What We Need Is Productivity Thinkers

PERHAPS two kinds of business thinking have emerged during the period of business recession we have passed through. One we might call the "back-to-normal" thinking. Men with this philosophy may have successfully guided their companies through this difficult period, carried out economy drives, and brought along good men in their organizations equal to the crisis. They may have trimmed the fat, cut overhead and increased inventory turnover. But, under "back-to-normal" leadership, general increases will automatically go into effect. Bonuses

Here's why *Sentry* AT-A-GLANCE TANK GAUGES are tops in sales and performance



1 ACCURATE, DIRECT READING —
Red indicator and large, non-fogging calibrated scale provides clear, visible reading from any angle.

2 HEAVY DUTY CONSTRUCTION —
Non-leakable double wall dome secured to die-cast, non-corrosive zinc base assembly. Withstands 70 lb. air pressure per sq. inch. Fully guaranteed.

3 FOOL-PROOF MECHANISM —
Simplified lever-type action. No magnets, gears, cams or springs to wear out. Non-corrosive thruout.

4 PROTECTED CORK FLOAT —
Triple coated with phenolic base Bakelite. Absorption-proof. Resists oils, alcohol and other chemicals.

EASY TO INSTALL —
Install quickly and easily, even in partially filled tanks.

5 FITS ALL TANKS —
Factory adjusted to fit all tanks up to 12" deep with standard openings of 2" (Model D-2) or 1 1/2" (Model D-1 1/2).

Fastest selling in the industry, Sentry AT-A-GLANCE gauges are recognized for their superior qualities of accurate measuring, clear visible reading, rugged but simplified construction and long-life durability. They are fully guaranteed and "listed as standard" by Underwriter's Laboratories. Complete Literature, Sales Brochures and Counter Displays available.

SENTRY Superior Quality THERMA-GAUGE

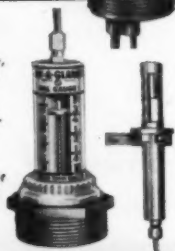
Similar to the standard AT-A-GLANCE gauge above, but features a solid red thermometer type indicator and a two-piece die cast plug-nut assembly which permits simplified tank installation.



STOVE AND SPACE HEATER GAUGES
Several models with accurate, easy-to-read indicators to fit all tanks. Also models for small tanks such as power mowers and outboard motors.



REMOTE READING TANK GAUGES
Several models for outdoor reading of levels in tanks indoors, underground or at delivery fill pipe.



KRUEGER *Sentry* GAUGES
GREEN BAY • WISCONSIN

the editor's notebook

(Continued)

will be hiked. Requisitions for extra help will be approved. The fat will begin to build up again. Yes, if the "back-to-normal" attitude prevails, today's gains will quickly be frittered away.

The reverse of this is "productivity thinking." The "productivity thinker" has not only learned something lasting from the recession experience but it is now firmly ingrained in his thinking and approach. Looking at his organization, he sees it knit together by a sound team spirit. People are really working in his company. The non-contributor is gone. Gone also is the "something for nothing" frame of mind. In its place is honest satisfaction in—and honest reward for—achievement and good performance.

The "productivity thinker" believes that "productivity" not "normalcy" is the goal. And because he believes this, so does everyone in the organization.

His is the company that will grow and prosper. (From an address by A. Lightfoot Walker, president, Rheem Mfg. Co.)

Attic Vents Add Summer Comfort

ALL INSULATED houses should be provided with attic ventilation. In summer the vents let out the accumulation of air heated by the sun on the roof surfaces and thus greatly increase warm weather comfort. Such vents, of course, should be above the insulation and should be open at all times during hot weather. Windows in unused attics are seldom satisfactory because driving rains will come in; the better practice is to use metal ventilators with louvers and to locate the openings as high as

HOW TO **WIN** CUSTOMERS AND **INFLUENCE** PROFITS!

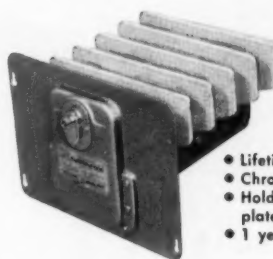


GENERAL HUMIDIFIER puts moisture in . . .
GENERAL FILTER takes harmful dirt out

Picture *your* customers in this happy setting . . . you've just installed a trouble-free GENERAL HUMIDIFIER and a dependable GENERAL FUEL OIL FILTER in the heating system. Typical dealer profit? About \$15.00!

Sell your customers this double heating protection: a comfortable, *healthy* home thanks to increased humidity; steady, dependable heat that gives maximum efficiency, saves on fuel bills, ends middle-of-the-night call-backs for you!

YOUR SALES MARKET IS HUGE! Fewer than *one warm air furnace in five* has a humidifier. Millions are without a filter—or dirt-clogged cartridges are changed only infrequently. Every time you check a heating system, look for these easy sales!



**Model 800
"Moisture-Matic"**

- No float to stick or clog
- Corrosion-proof molded pan
- Lifetime neoprene diaphragm
- Chrome plated valve
- Holds up to 15 "Porous Weave" plates
- 1 year guarantee on parts

General Filter

- Lifetime cast iron and steel construction protected with rust-resistant plastic coating
- Wool felt cartridges—trap moisture, dirt, lint; prevent nozzle clogging
- Wool felt cleaned and bonded to center core
- 1A-25A, 2A-700A, 2A-300



HEALTHFUL HOMES are GENERAL-humidified . . . GENERAL-filtered



Member of the Humidifier Association

GENERAL FILTERS, Inc.

43800 GRAND RIVER AVE.
NOVI, MICHIGAN

IN CANADA: Canadian General Filters, Ltd., 39 Crockford Blvd., Scarborough, Ontario

the editor's notebook

(Continued)

possible in every gable of a gable type roof and under the eaves in hip roof construction. In most cases when there are large attic areas, several louvers should be provided so that there is uniform ventilation throughout.

A great deal of research on home ventilation has been conducted by the Metal Ventilator Institute. As a result of this research, literature and charts showing how to determine what size metal louvers to install in any home are available from the institute. To simplify the task of selecting proper ventilators, members of the institute label each unit they manufacture, accurately certifying the net free ventilating area that the particular louver provides. Copies of the charts can be obtained free of charge from the institute at 22 West Monroe St., Chicago 3.

What Constitutes Good Advertising?

DOES your advertising stimulate the basic urge of a prospect to buy?

Good advertising should stress the following appeals:

- 1) Newness.
- 2) A good investment.
- 3) Exceptional value.
- 4) Timeliness.
- 5) Convenience.
- 6) Enjoyment.
- 7) Pride of ownership.
- 8) Easy credit.

Enthusiasm: Salesman's Best Selling Tool

THE VERY BEST sales tool that a salesman has is enthusiasm. This must be continually emphasized by the dealer-contractor. He must be enthusiastic himself about the work he's doing and he must also be able to reflect his enthusiasm so that those rep-



HEATING AND AIR CONDITIONING UNITS

**... designed,
engineered,
and built for
quiet, comfortable,
carefree heating**

DESIGNED

for years of carefree and efficient operation.

BUILT

by experienced furnace men who know the business.



STYLED

for beauty to attract the discriminative home owner.

PRICED

for profits in today's competitive market.

HI-BOY AND COUNTERFLOW UNITS

WRITE FOR

Information and name



of nearest distributor

8-9

THE JOHNSON FURNACE COMPANY

2129 WEST 117TH STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

resenting him will go out and convince a prospect that now is the time to buy and now is the time to buy *his* products. Without enthusiasm, a sale becomes "just another sale," and the customer does not feel that he has actually purchased something really worthwhile. Enthusiasm on the part of the salesman serves a dual purpose: It provides more work for his company and it gives his customer a feeling of prestige.

The best way to instill enthusiasm is by holding daily sales meetings. Where daily meetings aren't feasible, the next best thing is to hold weekly meetings. Have a goal at each meeting, show how it can be reached and how everybody is going to profit. I know a number of dealer-contractors and wholesalers who hold regular sales meetings, and their sales volume continues to climb each year.

What Factors Add Up to Good Administration?

HERE'S ANOTHER SBA "rule to manage by":

Small Business Administration
Washington, D. C.

Dear Mr. Barnes:

The subject of good administration for the small businessman involves five major ingredients — planning, organizing, staffing, directing and controlling.

How does planning fit in with administration? First, let me ask the dealer-contractor: How much time every week is spent on planning? For next week? Next month? Next year? Some large corporations plan 50 years ahead. No business is so small that it cannot benefit from planning a year ahead. One very practical way to improve the efficiency of a business is to plan regularly.

THERMOSTATS A room thermostat tells a whole lot about the system it controls. It's the only visible proof of quality. And if your system is General Controls equipped, you're telling your customer it's quality-built... efficient, reliable for years to come.

BE QUALITY SURE... ALWAYS SPECIFY GENERAL CONTROLS



GENERAL CONTROLS

Automatic Controls for Product or Process
Glendale, Calif. • Skokie, Ill. • Guelph, Ontario, Canada
Eight plants—42 factory branch offices
serving the U.S., Canada and Western Europe



Popular T-99 middle line thermostat features mercury switch dependability and clean modern styling.



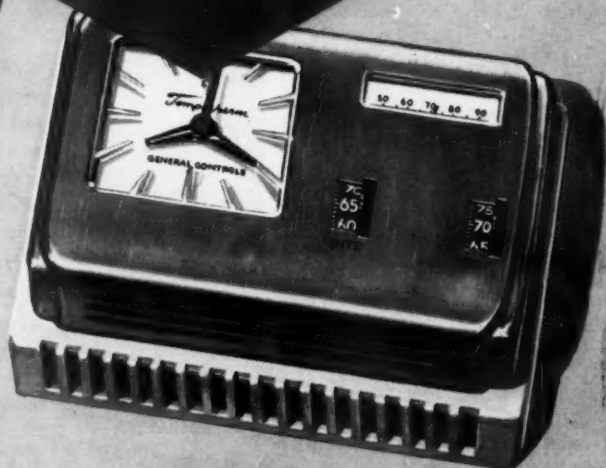
T-190 DECOR... the freshest touch yet in room thermostats. And this dependable mercury switch thermostat can be color-styled to blend with paint, paper or fabric.



T-241 air conditioning mercury switch thermostat with automatic switchover for one-spot control of heating and cooling.



T-265 THERMOSTAT... nite set back and automatic morning pickup by simply setting timer knob. Two-wire circuit... no extra transformer electrical connections.



T-270 TEMPOTHERM electric clock thermostat for perfect day and night heating control the year round. Also available Model T-271 for heating and cooling.



the editor's notebook

(Continued)

What do we mean when we use the word "organizing"? Maybe a dealer-contractor will say, "I'm too small to organize." I would like to suggest that every businessman needs some organization even if he has only one other employee. A dealer-contractor should ask himself, "Does my employee (or my staff) know exactly what to do when I am absent? And, even more important, when I am in the office?"

How about "staffing"? It's a difficult thing for the owner of a small business to realize that as the business grows, he will have to add one and later more supervisors to take some of the multiplying details off his own shoulders. The big problem is when to undertake this step.

Many small and very successful businesses are started in basements or garages. The only employees are other members of the family. When it comes time to hire the first full-time paid employee, there are no personnel policies, and too often the first person on the scene, or a friend who lives across the street, gets the job, without much thought being given to fitness and experience.

One of the most expensive management problems is that of high labor turnover. Coupled with it is hiring people who are not qualified to perform the job assigned them, thus increasing costs in an ever-increasingly competitive market. Here again, established management policies and procedures will help to keep turnover down, costs down, and volume up.

A fourth phase of administration is "directing," guiding and overseeing subordinates. It is sometimes felt that in small business, the

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outside lighting
for all
gas fired
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simple
convenient
dependable



• Available on all makes and models as original equipment from the manufacturer . . . Your customer will appreciate the push-button ease of pilot lighting and the freedom of sometimes hazardous lighting practices.

ATTENTION ENGINEERS—

NOW . . . Modern Lighters, Inc. has developed a new "carry-over" tube for sectional burners . . . approved and accepted by leading manufacturers. Send for complete information and samples.

(U. S. Pat. No. 2728384, Can. Pat. No. 566970)

WRITE FOR
COMPLETE
LITERATURE



**MODERN LIGHTERS
INCORPORATED**
Northville, Michigan

the editor's notebook

(Continued)

problem is not so much under-direction as over-direction. With only a few subordinates, it is easy to tell each one exactly what to do, when to do it and how to do it in the greatest detail. Such constant supervision discourages initiative and prevents employees from gaining the experience that will give them confidence in their own ability. Every businessman knows from his own experience that he had no idea what a mistake was like — and how much trouble it could make — until he had made a good big one himself.

Finally, under this heading of administration comes that very important word, "controlling." If there is any one management function that is more important than all the others, it is probably controlling. If the owner — or manager — does everything else with consummate skill but does not control or coordinate the different activities of his business, he cannot expect maximum profits from it. Controlling covers men, money, materials, merchandise and markets. It all adds up to success or failure. Control of the business as a whole by controlling its many parts is one management function which the owner-manager cannot delegate. This he has to do himself.

Sincerely,

Wilford White, Director
Office of Management
and Research Assistance

These are "rules to live by" — review them often. Next month Mr. White will tell us where a dealer-contractor can locate sources of management aid. Be sure to look for his letter in this column.

Clyde M. Barnes

EDITOR



MAKE THE "PENCIL TEST"

If there's room for a pencil point, there's room for improvement in your air distribution system!

Only **WILLIAMSON** Seal-Tite* duct, pipe & fittings offer you all these profit-making advantages...

- no heat leakage, no "dirt" complaints . . . most efficient distribution ever.
- patent applied for and copyrighted . . . exclusive to Williamson Seal-Tite dealers.
- neatest appearance on the market . . . space-saving, tailor-made look.
- every fitting a perfect fit . . . saves up to 8 hrs. per job.
- parts numbered to save time in design, ordering, loading, warehousing, inventory . . . less shop time, more field time.
- parts cartoned . . . saves warehouse space, reduces losses due to dirt, damage and distortion.
- streamlined design . . . reduces air friction to new low . . . increases efficiency to a new high!

Act Now!

See for yourself
Act Seal-Tite will
make money for you!

THE WILLIAMSON COMPANY • 3310-P9 MADISON ROAD • CINCINNATI 9, OHIO

Send me further information on: ☐ Williamson Seal-Tite Duct, Pipe and Fittings

☐ Williamson Gas, Oil and Coal Furnaces ☐ Williamson Air Refrigeration Cooling Units

NAME _____ FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

*TM, Pat. Pending

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T86 and T87 Rounds
—the T86 for heating,
T87 for heating-cooling.
World's largest-selling
thermostats. Watch-like
accuracy and 100% dust-
proof mercury switch in-
sures trouble-free installa-
tions. Snap-off outer ring
can be painted to match wall
color.



T832, Day-Nite Round
thermostat with manual set-
back for lower economical
temperatures—night or day
—and has automatic tem-
perature pick-up. Controls
cooling through a revers-
ing relay.



**T861 Heating-Cooling
Clock Thermostat**—can
be installed for heating only,
then merely add subbase
for heating-cooling. Auto-
matically resets heating or
cooling temperature in the
morning, again at night.

RE

SURE you're sure when you install
dependable Honeywell Thermostats.

They're backed by over 70 years of proved reliability. That means Honeywell thermostats are *sure* to keep working properly so you're sure to keep your installation profit. And it's only *one* of lots of ways you profit by handling all-Honeywell matched controls. For when you deal with Honeywell, you're *backed* by Honey-

well. Backed 100% by the best service in the industry and a complete line of quality products. You get reliability—easier installation—simplified inventories—training school for your crew—*plus* really fast help when you need it. Help that's instantly available from 112 Honeywell sales-service offices close as your phone.

For information on Honeywell's complete line of control systems for heating and cooling, call your local Honeywell office, or write Minneapolis-Honeywell, Dept. AA-9-52, Minneapolis 8, Minnesota. Honeywell sales and service coverage is world-wide.

Honeywell



First in Control



For more than just a motor

Solve your motor problems with

You can make your job easier with Century Electric's complete line of fractional-horsepower motors. Here's how:

Easy ordering—You save time because you get answers to all motor problems from one source. This means you don't have to shop around for the motor you need. You name it—capacitor, jet pump,

unit heater, oil burner, brake, gear—any one you want, and in all types of enclosures too.

Fast shipments—From Century Electric's complete stock you can get a motor for any standard application. In addition, motors are packed in sturdy boxes so if you reship you know they'll arrive in good condition.



Century's complete fractional line

Application know-how—You want to be sure you have the *right* motor for the job. And if you need expert help, you can get it from your nearest Century Electric sales engineer. He knows motors inside and out because he sells, applies and thinks motors day after day.

This is why you get *more* than just a motor

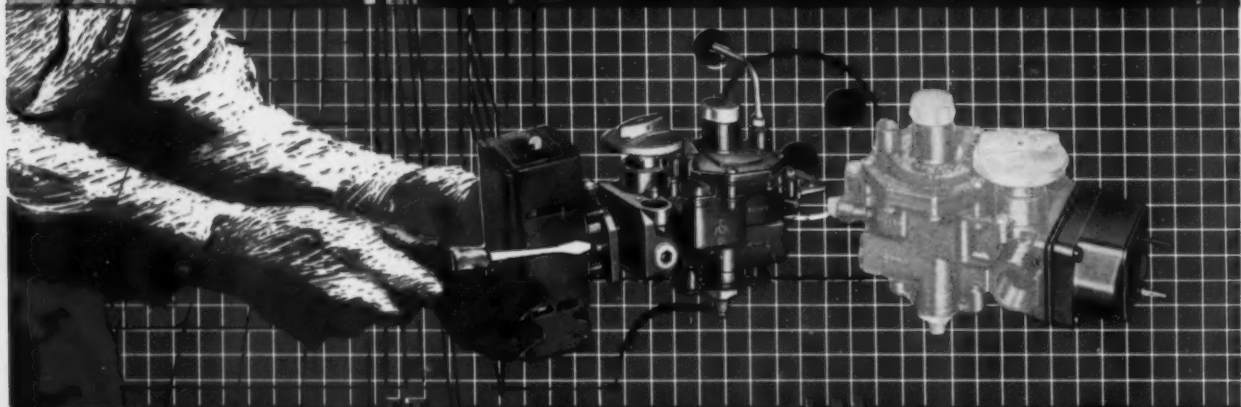
from Century Electric. You get a quality product, fast answers and engineering application know-how on motors up to 400 hp—all from one source.

CENTURY ELECTRIC COMPANY
St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
66-19



How  builds
a "warm attachment"
for your space heaters . . .
wall heaters . . . furnaces



ET **ELECTRIC THERMOSTAT**
Wall thermostat operates heater from high fire to off, or
from high fire to low by-pass flame. Complete kit, electric
operator plus thermostat, transformer, wire and staples.

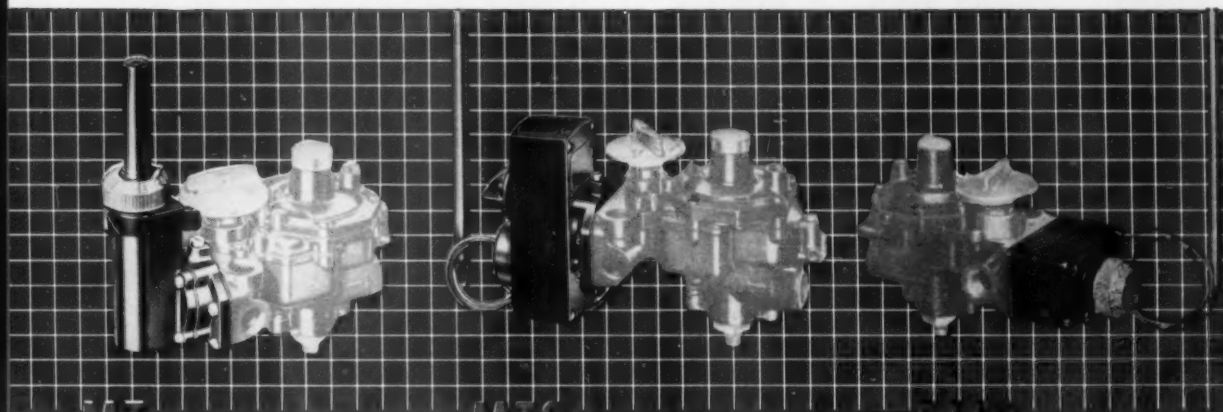
EM **ELECTRO-MAGNETIC OPERATOR**
with wall thermostat. Has a quiet snap action. Com-
pletes the control package for space heaters, wall
furnaces, central heating units, 115 or 24 volts AC.

GREATER SALES APPEAL • LOWEST POSSIBLE COST •

THE RIGHT ACCESSORY FOR EVERY CUSTOMER

BUILDERS of heating equipment know that operating versatility is the most important asset of any heating appliance. That's why it's wise to equip your product with A-P single unit gas controls for the added flexibility of easy conversion to automatic operation. Yes, by simply attaching any *one* of *six* different thermostatic accessories to the basic valve, you, your dealer or the customer himself can install the exact temperature control to satisfy any comfort or budget need. A screw driver and a few minutes' time do the job with no need to break the line or disconnect the valve.

Controls Company of America backs this control versatility with the industry's most flexible service set-up... the industry's finest service record. CC can arrange servicing from manufacturing plant or from its coast-to-coast network of service stations. However, if you or your dealers prefer to handle service separately, CC conducts comprehensive control schools whereby outstanding field men give you all the facts on the design, operation and servicing of A-P gas controls and accessories. Write today for details on these arrangements. We'll see that your inquiry receives prompt attention.



MT

MODULATING THERMOSTAT

Thermo bulb modulates flame between high and low fire. Maintains constant comfort despite fluctuating outside temperatures. No wiring. Completely mechanical.

MTS

MODULATING SNAP THERMOSTAT

A sensitive thermo bulb and capillary tube provide the advantages of remote control operation but require no wiring. Snaps on at high fire. Modulates between high and low fire. Silently snaps off when low fire is no longer needed.

5110

SNAP THERMOSTAT

Snap on/off mechanical type gives temperature control between high and off — silently snaps off when low fire is no longer needed. No wiring required.

5112

MODULATING SNAP THERMOSTAT

Gives Modulating temperature control between high fire and low fire. When ambient temperature around sensitive thermo bulb drops to point where the bulb calls for heat, valve snaps on to high fire. When modulating low fire is no longer needed, valve snaps to off.

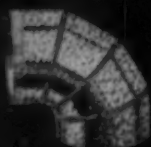
DEPENDABLE OPERATION



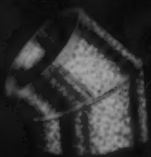
Creative Controls for Industry

CONTROLS COMPANY OF AMERICA

2452 N. 32nd Street • Milwaukee 10, Wisconsin
COOKSVILLE, Ontario • Postfach 313, ZUG, Switzerland



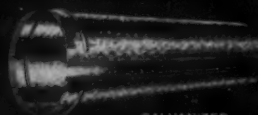
90° ADJUSTABLE
ELBOW



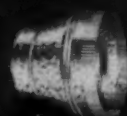
45° ADJUSTABLE
2-PIECE ANGLE



AIRFLO
TEE-JOINT



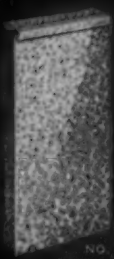
GALVANIZED
FURNACE PIPE
10'-5'-2"



TAPERED REDUCER
OR INCREASER



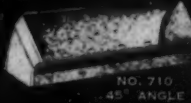
NO. 738
END BOOT



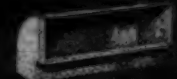
NO. 700
WALL STACK



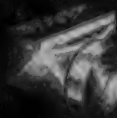
NO. 745
45° ANGLE
REGISTER BOOT



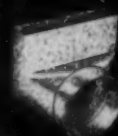
NO. 710
45° ANGLE



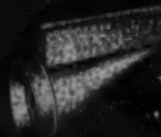
NO. 711
90° ELBOW



NO. 740
90° ANGLE BOOT



NO. 742
90° ANGLE REGISTER
BOOT



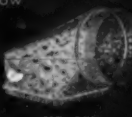
NO. 748
END REGISTER BOOT



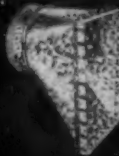
NO. 703
STACK HEAD



NO. 597
ADJUSTABLE
TAKE OFF



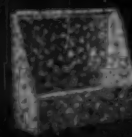
NO. 595
90° TOP
TAKE OFF



NO. 598
90° SIDE TAKE OFF



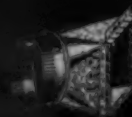
NO. 593
TOP STACK
TAKE OFF



NO. 820
OUT-OF-WALL
STACK HEAD



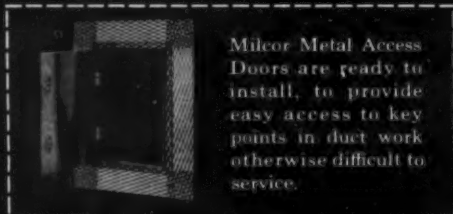
NO. 707
HORIZONTAL STACK HEAD



NO. 590
45° SIDE
TAKE OFF



NO. 504
TRANSITION
STARTING
COLLAR



Milcor Metal Access
Doors are ready to
install, to provide
easy access to key
points in duct work
otherwise difficult to
service.



A duct-work job is better pay
... using Milcor **ALL THE WAY!**



You can stake your reputation on a Milcor installation

Milcor Standardized Fittings save time in estimating, layout, and installation — cut the high cost of shop work — reduce your need for storage space, inventory, tools, and capital — and give you finished jobs that boost your business. Call your jobber for prices or write the nearest branch listed below.

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CP-39

WHAT'S HAPPENING . . .

New Residential Building Up 32%

WASHINGTON, D. C. — The value of new construction put in place in July is up seasonally to \$5.2 billion, according to early estimates from the Bureau of the Census, U. S. Department of Commerce. This is an increase of 3 percent over June and 14 percent over July 1958. Total value of the work put in place in the first seven months of 1959 is \$30.1 billion, 15 percent ahead of the same period in 1958, the bureau states. New residential construction showed a 32 percent expansion over the first seven months of 1958, rising from \$9.3 billion to \$12.3 billion.

Economists of F. W. Dodge Corp. point out that the most significant feature of the year's first half was the strength showed by the private sector of the industry, which rose sharply despite a drop in government projects. Noting that the Dodge seasonally adjusted index of contracts had risen to very high peaks in the middle of 1958, then declined in the winter, and is now rising again, the Dodge Corp. said:

"The peak in the middle of 1958 was very largely the result of government stimulation of housing and highway activity as an anti-recession measure. Perhaps the best feature of the first half of 1959 is that contracts have risen to almost the same level without the benefit of special government stimulants."

Industry Ships More Oil-Fired Furnaces

NEW YORK CITY — June shipments of warm air oil burner furnace-burner units amounted to 26,173, up 1 percent over June of 1958, according to the Oil Heat Institute of America. For the first six months of 1959, shipments totaled 130,763 units, representing a gain over the same period of 1958 of 3 percent.

SMACNA Metal Duct Construction Manual Made Available to Industry

ELGIN, ILL. — Information necessary to fabricate and install sheet metal ductwork used for low velocity ventilation and air conditioning systems has been published by the Sheet Metal and Air Conditioning Contractors' National Association in a 135 page, 8½ × 11¼ in. manual entitled "Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning Systems."

The manual does not cover the engineering involving static pressures, velocities or equipment selection, but assumes the engineer will be responsible for the design of the system. It does spell out how the sheet metal contractor can fabricate according to the designed specifications.

The manual, with the aid of page size plates, shows how to construct ducts that are satisfactorily airtight, that will not vibrate or breathe when the air stream varies in pressure and will assure an even flow of air without undue pressure loss.

Construction details for seams and joints, turning vanes, volume dampers, access doors, inspection plates and test holes, louvers and screens and duct acoustical treatment are explained and illustrated.

Fabrication and installation instructions are provided for duct hangers, fire dampers and doors, roof intake and exhaust storm covers, casings and housings, fume hoods, and boiler breechings.

There is also a suggested specification for sheet metal work used for ventilating and air conditioning systems. This specification covers general conditions; scope of work; work included; work not included; codes, permits and licenses; taxes; payments; scaffolding; utilities; and openings in floors, walls and roofs. It also includes equipment drawings and a system description. Sufficient leeway has been given the architect or consulting engineer to insert the specific

types of equipment he has in mind when engineering the job.

Price of the manual to non-members of the Sheet Metal and Air Conditioning Contractors' National Association is \$5.

The manual is the result of more than three years' work on the part of the committee assigned this job. Angelo Hoffmann, Louis Hoffmann Co., Milwaukee, was chairman. Assisting him were: John F. Creegan, John F. Creegan Co., Hawthorne, N. J.; Paul Stromberg, Stromberg Sheet Metal Works, Washington, D. C.; Lawrence O. Paul, Narowetz Heating and Ventilating Co., Chicago; Charles H. Johnson, Johnson Sheet Metal Works, East Moline, Ill.; Harold Stevens, Hunter Clark Ventilating System Co., Chicago; D. E. Mannen, Mannen and Roth Co., Cleveland; and Henry J. Couch, Ventilating and Air Conditioning Contractors' Association of Chicago.

New Census Data To Show Markets

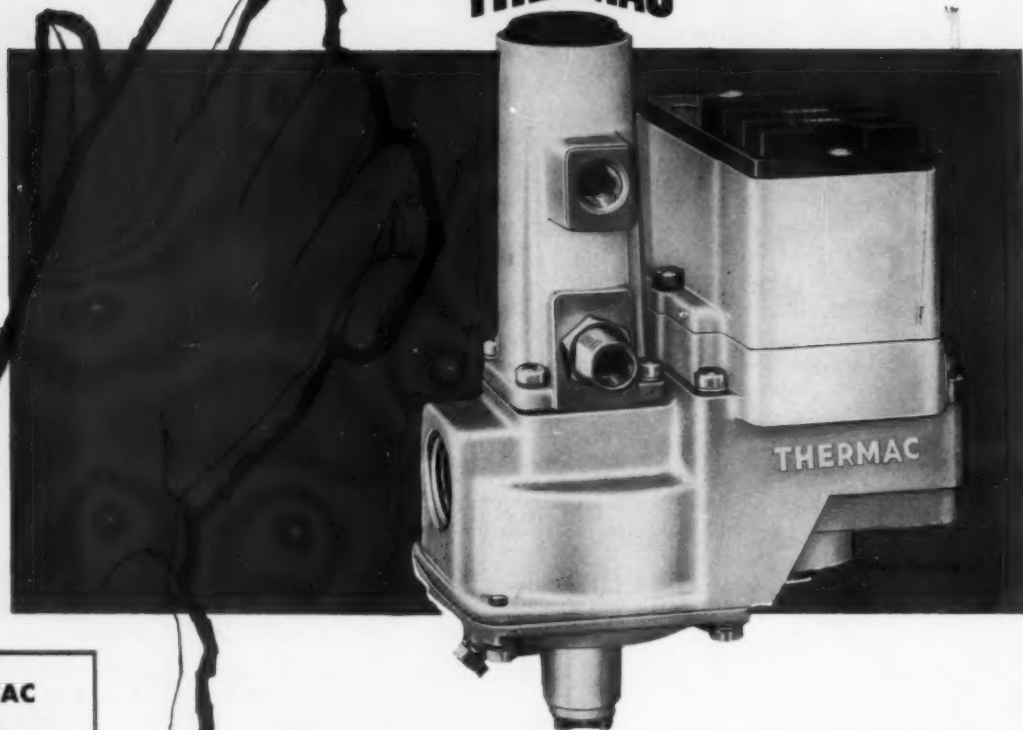
WASHINGTON, D. C. — The 1960 census of population, to be taken as of April 1, 1960, will include a total of about 25 inquiries, two thirds of which pertain to what might be called social characteristics and the remainder to economic characteristics such as work status, occupation, industry, and income. The first data to become available from the population census will be the preliminary figures on the number of inhabitants for local areas, based on the field counts. In the reports giving the final population count for each local area, the Census Bureau expects an improvement of more than a year in publication timing over the similar series of the 1950 census, and possibly even greater gains in the tim-

(Continued on page 24)

Smooth,

Silent, Controlled Ignition

WITH THE
NEW THERMAC CONTROL



**THERMAC
SLS
400 SERIES**

Here is the completely automatic gas control valve that provides *tip-toe quiet ignition* of gas appliances—Thermac's new, exclusive control. It gives *absolute control* of ignition, regardless of supply input. A special small valve opens first to admit the required volume of gas for proper ignition, followed by balanced opening of a second valve for normal full flow.

This new "step-flow" design is important. It eliminates flame roll-out, can simplify and save on fire-box construction, does away with need for shielding. *There is no ignition noise*, making the unit ideal for closet installations and similar applications. Thermocouple operated safety with 100% shut-off feature is employed. An exclusive patented precision gas regulator is utilized in this combination.

Make Thermac's silent control a strong selling feature for *your* appliances. It is thoroughly tested and approved, comes to you factory adjusted, ready to install. No further adjustments are required. Full details—including test samples—are available. Write Thermac today!

THERMAC

COMPANY


Certified
by A.G.A.

"27 years' experience building gas controls"

Distributed in Canada by Ontor, Limited.

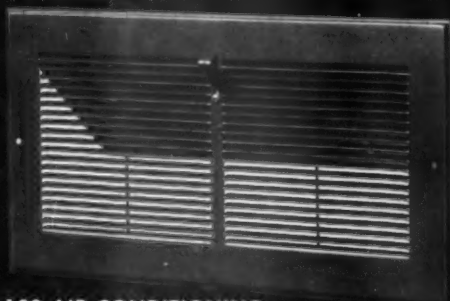
14296 EAST SIXTH STREET • CORONA, CALIFORNIA • REdwood 7-3511

AMERICAN ARTISAN, SEPTEMBER 1959

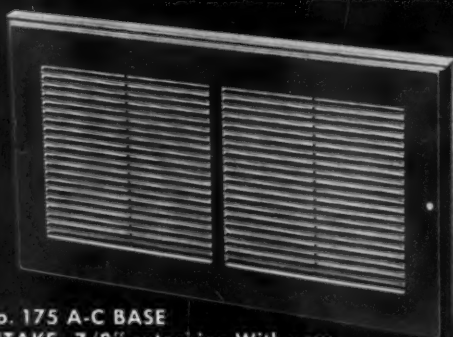


STRONGEST of single valve registers

NO HIGH VELOCITY "WHIR"
NO "HUMMING" or "STRUMMING"
NEW No. 153 A-C Register has NEW
TIE-BAR CONSTRUCTION at SAME LOW PRICE



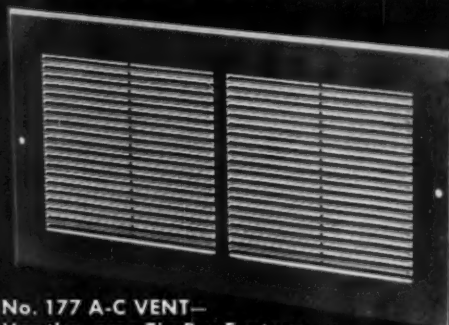
No. 153 AIR CONDITIONING REGISTER—New Tie-Bar stops vibration sounds. Safe to use on higher velocity jobs. Note the new "Scoop-Type" Single Valve.



No. 175 A-C BASE INTAKE—7/8" extension With new Tie-Bar feature Eliminates High Velocity Air Noise experienced by other makes. Results will Prove it.



No. 165 AIR CONDITIONING BASE REGISTER—New Tie-Bar feature stops all Vibration Sounds—Increases Register Strength. Standard sizes with "Scoop-Type" Single Valves.



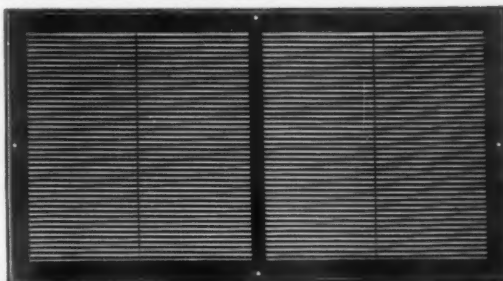
No. 177 A-C VENT—Has the same Tie-Bar Feature that Prevents those High Velocity Air Noises, and also Provides Increased Strength.

(GRILLE-BAR setting of 22° applies to Nos. 153, 165, 175, 177)

The No. 177 AIR CONDITIONING GRILLE

with the new Tie-Bar Construction is the Great Development for Residential and Commercial Air Conditioning. **GREATEST STRENGTH—NO VIBRATION SOUNDS!** At proper locations the 22° standard grille bars obstruct interior view. Strong angle bar reinforcement on rear of Grille gives Required Strength on large sizes not realized on competitive lines.

INSIST ON THE NEW U.S. TIE-BAR LINES



UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY

Report Heavy Demand for ARI Exposition Space

WASHINGTON, D. C. — Approximately 71 percent of the available space at the forthcoming Exposition of the Air Conditioning and Refrigeration Industry has already been contracted for, according to R. H. Luscombe, chairman of the exposition committee. Mr. Luscombe said that a number of outstanding speakers are being lined up to participate in the conference sessions, a new phase of ARI expositions. Names of speakers, as well as outlines of their presentations, will be released when program plans become firm. In connection with the conference sessions, special mailings are being made to a selected group of 5000 architects and consulting engineers whose work involves the planning and specifying of air conditioning equipment.

Scully Honored; Receives Free Enterprise Award

NEW YORK CITY — Frank P. Scully Sr., president and founder of Scully Signal Co., Melrose, Mass., recently was presented with an "American Success Story" award by the Free Enterprise Awards Association, Inc. Mr. Scully and 10 other recipients of awards were cited as having won "an enduring place in the history of American endeavor by achieving success despite adversity through industry, sacrifice and ethics symbolizing the success possible under our free enterprise system." Following the presentation at the Waldorf Astoria Hotel, the group was taken to the Russian Trade Fair.

Mr. Scully is the inventor of the "Ventalarm" signal and other devices which help make automatic delivery possible in petroleum marketing.

Wholesalers Offer New Management Training Course

ST. LOUIS, Mo. — Local members of the Northamerican Heating and Air-conditioning Wholesalers' Association have announced another dealer-contractor management training school to be held Oct. 18-20 at Washington University, St. Louis. The program committee consists of W. L. Dulle, E. E. Souther Iron Co.; Ed Kuenz, Ahrens & McCarrons, Inc.; Leonard Troeller, A. G. Brauer Supply Co.; and Joe Forshaw, Forshaw, Inc.

Dealer-contractors will receive instruction from members of the staff of Washington University and from industry representatives. Subjects to be covered include: Bidding, Pricing, Credit, Insurance, Reading and Using the Balance Sheet, Legal Organization of a Business, Taxes, and Customer Relations.

Attendance is open to dealer-contractors serving the St. Louis area. Additional information can be obtained from any member of the committee listed above.

Aluminum Featured At Moscow Exhibit

NEW YORK CITY — Two major buildings in the American National Exhibition in Moscow are roofed in aluminum, according to the Aluminum Association. One, the information center, has an aluminum dome 200 ft in diameter; the other, the main exhibition hall containing 50,000 sq ft of space, is covered by a natural finished aluminum roof which was fabricated in the form of large accordion pleats. The roof and the end walls are constructed in the form of sandwich panels, the inner and outer skins of which are also aluminum. Aluminum also appears in gutters, conductor pipe and fascia.

Census Data Will Show Where to Look for Sales

(Continued from page 21)

ing of statistics on age, sex, race, marital status, and other characteristics.

The 1960 census of housing will include about 35 inquiries concerning the basic characteristics of the housing unit, the plumbing and water supply, and kinds of equipment and facilities associated with the unit. Among new topics to be covered in the 1960 housing census are air conditioning units and water heating fuel.

Gas Sales Up; Predict Records In Next Two Years

NEW YORK CITY — Manufacturers of gas-fired central heating equipment shipped 29.1 percent more units during the first half of this year than they did in the same period of 1958, the Gas Appliance Manufacturers Association reports. Furnaces, boilers and gas conversion burners shipped during the first six months totaled 529,800 units, compared to 410,300 shipped in the same period last year. Furnaces shipped in the first half of 1959, including both forced warm air and gravity types, numbered 433,600, a 35.4 percent increase over the total recorded for the comparable period in 1958.

Manufacturers of gas warm air furnaces expect sales to go over the one million unit mark for the first time in 1959, GAMA says, and to further surpass that mark in 1960. Automatic gas water heater manufacturers expect second half sales to approximate 1,468,300 units, bringing 1959 sales to the record level of 3,030,700 units. Unit sales in 1960 are expected to exceed 1959 sales and approximate 3,076,600 units. Gas vented recessed

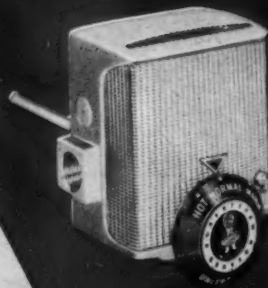
(Continued on page 28)



UNITROL 110R



UNITROL 200R



UNITROL 400R




3
smart ways
to push-up
your water
heater
sales score!



SPECIFY ROBERTSHAW UNITROLS WITH BUILT-IN PRESSURE REGULATORS
TO...INCREASE GAS BURNER RATINGS...IMPROVE IGNITION PERFORMANCE...
IMPROVE YOUR WATER HEATER SALES APPEAL.

New Robertshaw Unitrols, with built-in pressure regulators, give your water heaters the smooth, modern look... clean design, no sharp corners, no dust-catching crevices. For a higher sales score, enable salesmen to demonstrate the smart new Unitrol 200R with its slip-top cover and concealed knobs... or best yet, the Unitrol 400R with the slip-top cover and the flip-top lid... and the ultimate in appearance. Robertshaw Unitrols with built-in pressure regulators also simplify your assembly and inventory problems! ■ Push-up your water heater sales *high* — specify the smart, new Unitrol 110R... *higher* with the smarter Unitrol 200R... *highest* with the fabulous Unitrol 400R — all with built-in pressure regulators.

FOR MORE
INFORMATION,
CONTACT:

Robertshaw 

GRAYSON CONTROLS DIVISION • LONG BEACH, CALIFORNIA



Architect: William B. Tabler, New York, N. Y., Ductwork Fabricator: Limbach Company, Pittsburgh, Pa. General Contractors: Turner Construction Company, New York, N. Y.

Galvanized Steel Sheets make strong, low-cost ductwork in the new Pittsburgh Hilton Hotel



Ductwork for the new Hilton Hotel in Pittsburgh is being fabricated from USS Galvanized Steel Sheets by Limbach Company. Galvanized steel was specified for this job because of its strength and economy. USS Galvanized was selected because of its consistent high quality. Because USS Galvanized Steel Sheets are strong and rigid, lock joints stay tight—less soldering or riveting is needed. The rigidity of the steel reduces flutter and vibration and allows longer spans with fewer supports—this makes installation quicker and easier.

USS Galvanized Steel Sheets are easy to form. Even with severe shaping, the zinc will not flake off the base metal because USS Galvanized Steel Sheets have a tight, uniform bond between zinc and base metal.

Save money and improve the quality of your ductwork. Specify USS Galvanized Steel Sheets for your next job. USS Galvanized Steel Sheets are available from local steel service centers.

USS is a registered trademark

United States Steel Corporation - Pittsburgh
Columbia-Geneva Steel - San Francisco
Tennessee Coal & Iron - Fairfield, Alabama
American Steel & Wire - Cleveland
United States Steel Supply - Steel Service Centers
United States Steel Export Company

United States Steel



HERE IT IS!

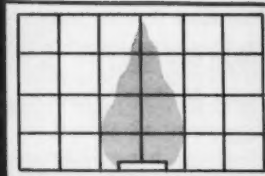


TODAY'S ONLY PERIMETER DIFFUSER THAT'S ADJUSTABLE TO RIGHT AIR PATTERN FOR HEATING.. RIGHT AIR PATTERN FOR COOLING



FOR WINTER HEATING

For winter heating, provides the air pattern you need for BEST heating results — a low level, fan shaped pattern that blankets entire wall or window area.



FOR SUMMER COOLING

For summer cooling, distributes air in high vertical pattern — a BUILT-IN BEST COOLING RESULT. Forces air in downward setting and BEST air circulation.



MODEL P-125

● ONLY BASEBOARD DIFFUSER MADE THAT MEETS NEEDS OF MODERN AIR CONDITIONING SYSTEMS

Let's not kid ourselves (or our customers)! Cheap, one-air-pattern diffusers simply CAN'T DO THE JOB. It takes a fully adjustable diffuser like the Titus Model P-125 to obtain maximum performance from both heating & cooling systems.

● ELIMINATES CUSTOMER COMPLAINTS—COSTLY CALL-BACKS

Because these new Titus diffusers adjust to handle air correctly for both heating and cooling — customers get maximum comfort from their air conditioning systems. **THIS MEANS HAPPY, SATISFIED CUSTOMERS, MORE MONEY IN YOUR POCKETS.**

● DISTINCTIVE SWEET-LINE STYLING

Today's "best-looking" baseboard diffusers — yet are ruggedly built to take rough, tough, floor level abuse. Beautiful Neutra-tone finish harmonizes with any interior.

● FAST, EASY INSTALLATION SAVES MONEY

New type base quickly, easily attached to boot. Face comes off so diffuser easily fastened to wall.

● CHOICE OF 2 MODELS

Model P-125 with heating and cooling adjustment feature and **ECONOMY Model P-75** with damper adjustment only. Both have large, 32 sq. in. of free area. 24 inches in length.

designed by

TITUS

FREE CATALOG TELLS THE STORY!

TITUS MFG. CORP., WATERLOO, IOWA

- ☐ Rush new free illustrated Titus Perimeter Diffuser Catalog.
- ☐ Send name of jobber nearest me.

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COMPANY _____

ADDRESS _____

CITY _____

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This Year's New Houses Bigger Than Last — NAHB

WASHINGTON, D. C. — Houses being built this year are bigger than last year's, have more bathrooms and fewer carports. Outside of that, this year's house characteristics are pretty much the same as those built in 1958. The median price this year, however, is \$200 less than last year's \$14,200. These are some of the conclusions drawn by the National Association of Home Builders from replies of 500 builders who responded to a recent survey conducted by NAHB's economics department.

The survey posed questions about the market, builders' operations, financing, production outlook, and characteristics of new homes.

The replies indicated money is getting tight and probably will get tighter later in the year. One third of the builders reported that money is already tight, mainly for FHA and GI mortgages. Only one builder in seven reported that funds for conven-

tional financing appear to be tighter.

As for house characteristics, the typical builder this year is putting up a house of about 1210 sq ft, the survey indicates. This is about 2 percent larger than last year. There is a decided trend toward more baths, with about two houses in three having more than one bath.

Three bedrooms are the mainstay; only 7 percent of all 1959 houses were reported to have two bedrooms, as against 18 percent last year. Four bedroom homes increased from 10 percent in 1958 to 14 percent in 1959.

There were few shifts in exterior wall material from 1958 to 1959, according to the survey. Brick was still high at 32 percent, down 2 percent from 1958. Wood was next at 23 percent, down 3 percent from 1958. Stucco was up.

About three in 10 houses in 1958 and 1959 had basements, either full or partial. There was very little change in the relative volume of basements, slab and crawl space construction.

OHI Management Clinics Stir Wide Interest

BOSTON — Four hundred and sixty oil heating dealer-contractors and wholesalers attended the eastern regional management clinics held recently in Boston by the Distribution Div., Oil Heat Institute of America. Subject covered at the first clinic was "Credit, Accounting, Insurance and Office Management Procedures." Everett Elliott, vice chairman for the East of the Distribution Div., served as panel moderator. The second clinic was devoted to "Sales Promotion and Sales Management." Panel moderator was T. R. Loizeaux Sr., national chairman of the Distribution Div. and a vice president of OHI.

Gas Industry Sees Record Sales Ahead

(Continued from page 24)

wall heater sales are expected to reach an all-time high of 427,300 units in 1959 and 440,800 units for the following year.

The natural gas industry is now laying plans for extending service to approximately a million more families each year over the next 10 years, GAMA states. In its annual edition of "Natural Gas Construction Data," the association reports that the 31,792,000 utility customers receiving gas service as of Jan. 1, 1959 are expected to grow to 43,700,000 by 1970.

Georgia Group Objects to AIA Contract Clause

ATLANTA, GA. — The Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia reports that the American Institute of Architects has revised Article 20 of AIA Contract for Construction, Form A-201. According to the association, the revision imposes on contractors and subcontractors an obligation of guaranty against faulty material and workmanship for the duration of the statute of limitations at the place of the building. In Georgia, the association says (and probably in most other states), the statute of limitations is 20 years under seal. Article 20, AIA Standard Contract Form A-201 (a revision of 1951 Form A-2) now reads:

"Correction of work after final payment. The contractor shall remedy any defects due to faulty materials or workmanship and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date

(Continued on page 32)

Silver Shield Courses Expanded to 12 Weeks

CLEVELAND — The Silver Shield Training Program has been expanded to provide 12-week courses, according to George Boeddener, managing director of the National Warm Air Heating and Air Conditioning Association. Sessions are two and a half hours in length, are conducted one night a week. Subjects covered include the design, installation, adjustment and balancing of both winter air conditioning and summer air conditioning systems in all types of residential structures.

Silver Shield training programs are handled by each local dealer-contractor group, with instructors being supplied by local industry, universities, colleges or utilities. Courses are open to all dealer-contractors in the cities where they are held.

Only **ONE**

Looks like.....
Fits the hand like..
Operates in restricted space like..



A **SIoux** all-angle drill!

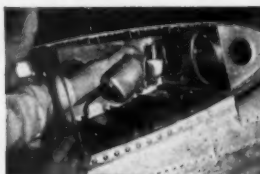


The Sioux All-Angle drill is a complete departure from conventional design. It doesn't look like the others, doesn't operate like the others. It was freshly, and functionally designed to fit the hand naturally, and to work just about anywhere you can get your fist. Because it will work in so many places that conventional drills won't, it is a much more useful tool. Users of drills in every conceivable field have taken to this powerful $\frac{1}{4}$ " drill with that special kind of pride,

and satisfaction that men who work with tools can have for good design, and quality manufacture. They have written unsolicited letters about its good "feel," about how they couldn't stall it even with over sized drills; about how it continued to deliver dependable day in, day out service, years after other nationally known brands purchased at the same time, had been scrapped. This is *not* just another drill. It's one of the most popular professional drills ever made!



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SIoux *All-Angle* **screwdriver**



Built on the same frame as the All-Angle Drill the Sioux All-Angle Screwdriver inherits all the advantages of lightness, power, ease of operation, and ability to work in limited

space. It is immensely useful anywhere screws of any kind are driven or removed. Tightness of screw is determined by hand pressure of operator in one model, by pre-setting in another.



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CONSTRUCTION



ASSEMBLY LINE

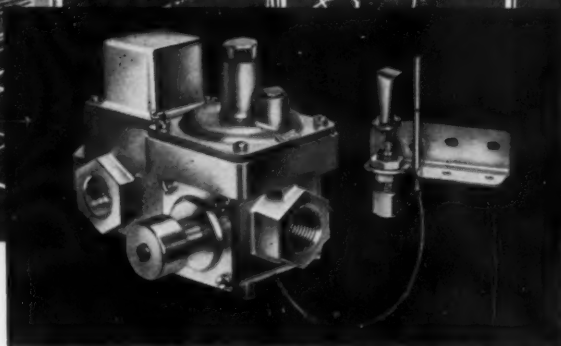


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UPFLOW: Compact Gas Fired and Oil Fired Winter Air Conditioning Units are completely Assembled and Wired, Heavily Constructed and Smartly Styled. Equally adaptable for the basement, the utility room or alcove.

COUNTERFLOW: Gas Fired and Oil Fired Units are completely assembled and wired and have the same compact design, heavy construction and trim styling as the upflow units.

HORIZONTAL: Gas Fired and Oil Fired Furnaces are low and compact for the "tight" spaces—a complete line of Gas or Oil, having the superior qualities of heavier construction.

BASEMENT: Gas Fired and Oil Fired Units. Burn either Gas or Oil with equal efficiency. Handsome Console Cabinet. Assembled and Wired Oil Units — 84,000, 95,000 and 112,000 Btu Output.

MORE PROFIT-PRODUCING ADVANTAGES

...YOURS WITH

Luxaire®

If your business is booming, but profits are not, it will pay you to investigate the unique, *money-making* advantages that are available to you with Luxaire!

Luxaire is the deluxe, complete line of Heating and Air Conditioning Units, having the distinctive qualities of uncomplicated design and heavy construction — for which you pay nothing extra!

As a matter of fact, prices of Luxaire Units are consistently lower than those of the other desirable makes of furnaces — lower,

even, than for many cheaply constructed units!

This difference is made possible because Luxaire sells in volume, and is manufactured in volume — with advanced production methods that produce substantial cost savings.

Consequently, Luxaire gives you the qualities to command extra profits from replacement and custom-installed jobs, plus the power to compete successfully in price bidding.

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2, 3 or 5 H.P.
Air Cooled
Condenser-
Compressor Unit.
Underwriters'
Listed for Outdoor
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Upflow Winter
Air Conditioning
Unit with
Circular
(Plenum Type)
Cooling Coil.



Basement Type
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Unit with
Circular
(Plenum Type)
Cooling Coil.



Counterflow
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Counterflow
Cooling Coil
in Accessory
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Horizontal Furnace
with Duct Type
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5 Sizes.



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the original 18" baseboard perimeter diffuser



Baseboard Intake



1. one-piece body with pre-cut opening and convenient knockouts
2. built-in damper for perfect system balancing
3. factory-set fins for proper air diffusion



Auer Perfusaire is a package unit, ready-to-install with only a screw driver. Only 18" long, it outperforms 4 to 8-foot units.

- * up to 50% faster installation
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- * modern as tomorrow
- * completely finished in decorator colors
- * low unit cost

For more information on Auer Perfusaire, matching baseboard intake and other perimeter diffusers, contact Auer today.



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"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6601 CLEMENT AVENUE • CLEVELAND 5, OHIO

WHAT'S HAPPENING . . .

Association Objects to AIA Contract Form

(Continued from page 28)

of final payment, or from the date of the owner's substantial usage or occupancy of the project, whichever is earlier, and in accordance with the terms of any special guarantees provided in the contract. Neither the foregoing nor any provision in the contract documents, nor any special guarantee time limit, shall be held to limit the contractor's liability for defects, to less than the legal limit of liability in accordance with the law of the place of the building. The owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the architect subject to arbitration, notwithstanding final payment."

Public Told Sources of Heating Plant Accidents

NEW YORK CITY — The National Fueloil Council, Inc. has prepared a public relations folder providing full background data for clear public understanding of oil and heating plant accidents. Titled "Facts About Heating Plant Accidents and Oil," the folder is designed to educate the press, officials concerned with heating plant accidents and, through these agencies, the public, about the high relative safety of oil heating.

Query Families on What They Want in Housing Facilities

WASHINGTON, D. C. — Husbands and teen-agers as well as housewives were consulted at the recent family conference on housing held during

National Home Week by the Women's Housing Congress. Delegates from some 45 cities were sent to Washington by local chapters of the National Association of Home Builders to participate in the sessions. "We've picked up valuable product information in the past conferences with women," according to Bernard Hartung, vice chairman of the Women's Housing Congress. "Now we're going to compare women's opinions with the viewpoints of the husbands and teen-agers."

IHACI Works on Courses For Dealer-Contractors

LOS ANGELES — Four new courses are being prepared under the sponsorship of the Institute of Heating and Air Conditioning Industries. The courses cover gas heating and air conditioning maintenance; estimating, engineering and layout; salesmanship; and heat pumps. Heading the curricula committee is Joe Wilson, Russell Heating and Air Conditioning.

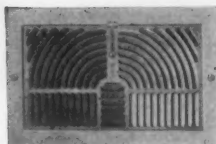
Gas Waiting Lists In Chicago to Be Ended This Year

CHICAGO — The Peoples Gas Light and Coke Co. has requested permission from the Illinois Commerce Commission to offer gas heat to the last 16,500 applicants in single family and two apartment buildings now on its waiting lists. Approval of the petition, which is regarded as routine, will mean that the company will have wiped out its waiting list for the first time since 1946. There is still a list for multiple dwelling units and commercial and industrial heating and new applicants for one and two family heating also will be placed on a waiting list. The extension of service will mean that 92,000 Chicago applicants for gas heat will have been satisfied in 1959, according to a company spokesman.

the best costs less!

***Auer* perimeter diffusers**

for sidewall and floor installations

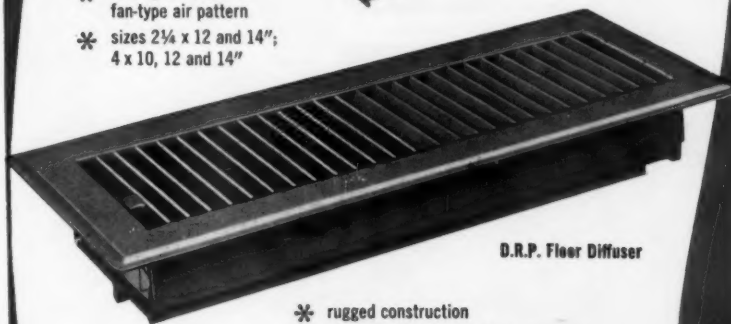


Fanaira Sidewall Diffuser

- * 180° air blanket for wall or window area
- * may be used as ceiling outlet
- * adjustable limit lock
- * sizes 10 x 6"; 12 x 4"; 12 x 6"; 14 x 6"

VL (Value Line) Floor Diffuser

- * lowest cost for economy projects
- * built-in opposed blade damper
- * factory-set vanes for fan-type air pattern
- * sizes 2 1/4 x 12 and 14"; 4 x 10, 12 and 14"



D.R.P. Floor Diffuser

- * rugged construction
- * factory-set bars for proper air pattern
- * adjustable limit lock
- * sizes 2 1/4 x 10, 12 and 14"; 4 x 10, 12 and 14"; 6 x 10, 12 and 14"

This rugged, low-cost trio meets all requirements for sidewall or floor-type heating or combination heating-cooling installations. For full details on the complete Auer line of perimeter diffusers and intakes, call or write:



THE AUER REGISTER COMPANY

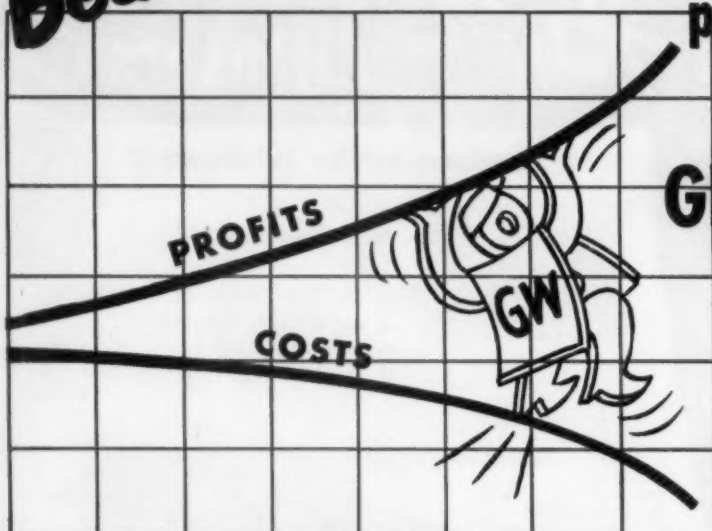
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Reduce your "Cost of Possession" by ordering the Sheet and Strip Steel you need when you need it. Let us carry the big stocks. Our fast deliveries will fit right into your production schedules. We carry over 20,000 tons of steel in a vast number of sizes, gauges and grades for immediate shipment.



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Reduce cost of processing by having Sheet and Strip Steel prepared to your exact specifications the economical Great Western way . . . fast accurate *Shearing* to size, precision *Slitting* to exact tolerance, *Edging* full round or deburred edge, *Corrugating* and *Roller Leveling*.



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Rattle free . . . no air leakage
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Complete
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Make quality dampers.
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New Product Information Available . . . Write NOW!



The most important man in this meeting is not present



That's not double talk; it's *straight* talk about the status of Lennox dealers in a Lennox management meeting.

Around this table, policy decisions are made. And dominating every meeting is the conviction that you, the dealer, are "Lennox"—as far as the public is concerned. An awareness of your importance—and our mutual dependence—affects every product, sales and marketing decision.

You see, the main business of Lennox is heating and air conditioning. It is not subordinate to a parade of diverse products foreign to the indoor comfort business. We have no sidelines; your business is *our* bread and butter, too.

For that very good and practical reason, your interests are protected. That's why—although you're not there in person—your "vote" decides every issue.

Wouldn't *you* like to be on this kind of a team? Write or phone your nearest Lennox factory for the full story—without obligation.

LENNOX Industries Inc.

—Established 1895

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N. Y.
Fort Worth, Texas • Salt Lake City, Utah • Decatur, Ga.
Los Angeles, Calif. • Des Moines, Iowa

Lennox Industries (Canada) Ltd.
Toronto, Montreal, Calgary and Vancouver

A black and white photograph of a tall building, viewed from a low angle looking up. The building has a stone or brick facade and several windows. A person is visible on a ledge or balcony near the top of the frame. The sky is visible in the background.

**High in
Quality...**

**Long on
Life!**

EXHAUST DUCTS FABRICATED OF REPUBLIC GALVANIZED SHEETS

A downtown Cleveland, Ohio, luncheonette has found a low-cost, long-lasting way to provide its patrons with freedom from cooking fumes and odors—with the aid of Republic Galvanized Sheets. Look at the photograph at left, showing skilled workmen installing exhaust ducts several floors above street level.

Despite forming at sharp 90-degree angles, Republic Continuous Galvanized retains its heavy coating of pure zinc, inside and out. Its tight, galvanized coating will not crack, flake,

or peel under any operation permitted by the base metal. And it can be counted upon to withstand constant exposure to weather, as well as the chemical effects of kitchen fumes, with minimum corrosion.

This application illustrates the adaptability of Republic Galvanized Sheets to a diversity of uses. For long life and consistently dependable high quality, investigate Republic Continuous Galvanized. Contact your local steel warehouse—your Steel Service Center.

Other Quality Republic Steel Products



EASY, EFFECTIVE FABRICATION is a characteristic of Republic Galvanized Steel Sheets. Severe brake forming, shown above as done by Fogel Refrigerator Company, Philadelphia, does not affect their resistance to corrosion. Smooth, spangle-free surface provides excellent paint-adhering qualities. Republic Galvanized readily takes many fabricating operations. Mail coupon.



BETTER WORK IN LESS TIME can be achieved with Republic "House Long" K Gutter, available in lengths up to 32 feet. Hang it in one piece—cut installation time in half. No need to measure, cut, and solder, as with short-style gutters. Good appearance, too—no seams to mar appearance, or become potential points of failure. For further details, mail coupon.

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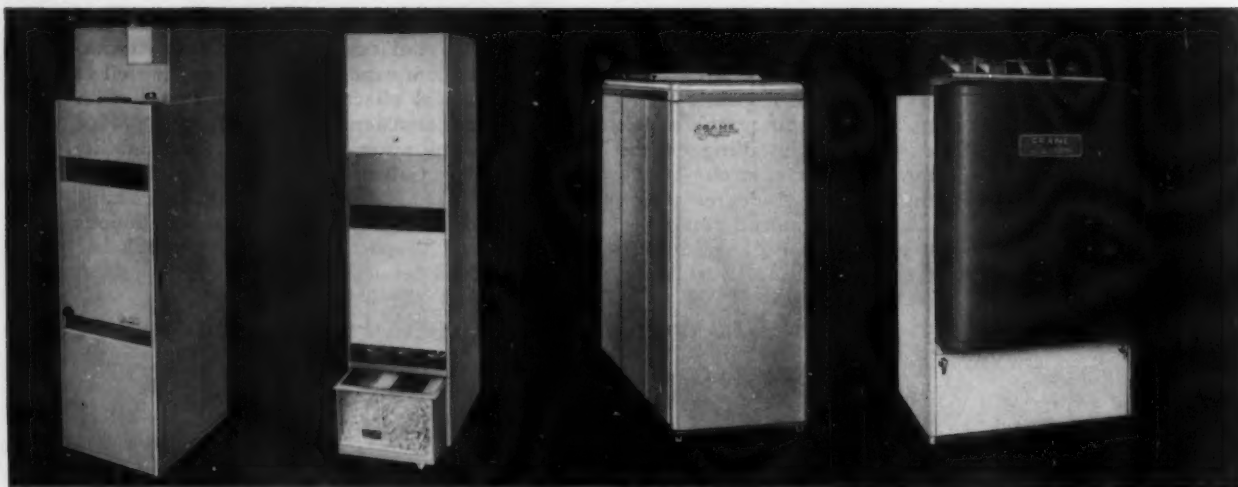
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UPFLOW-TYPE gas-fired furnace with cooling coil for basement installation. Completely assembled and wired. Heavy-gauge, welded heat exchanger assures extra long life. Eleven sizes: 65,000 to 200,000 BTUH input.

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BASEMENT-TYPE oil-fired furnace. For winter heating and adaptable to summer cooling . . . can be easily converted to gas firing. Five sizes: 84,000 to 224,000 BTUH net at bonnet.

UPFLOW OR COUNTERFLOW. Oil- or gas-fired year 'round air conditioner. Automatic temperature control. Air-cooled or water-cooled. Three sizes: 84,000 to 140,000 BTUH—BONNET (OIL), 80,000 to 140,000 BTUH—BONNET (GAS), 2-, 3- and 5-h.p. cooling capacities.

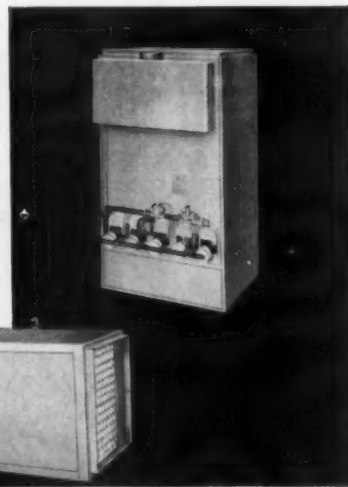
BASEMENT-TYPE UPFLOW furnace, gas-fired. Provides complete winter heating and adaptable to summer cooling. Ideal for homes of any size, as well as many commercial installations. Five sizes: 80,000 to 160,000 AGA net BTUH input.

BASEMENT-TYPE GRAVITY furnace, gas-fired. Pressed steel construction; standardized units keep the cost down, giving you more value per dollar. Four sizes: 60,000 to 120,000 AGA net BTUH input.



BASEMENT-TYPE all-fuels, forced air unit for coal (hand- or stoker-fired); easily converted to oil or gas. Gas-tight, welded all-steel construction for heavy-duty use. Three sizes: 81,045 to 127,633 BTUH register capacity (hard coal or coke); 95,424 to 127,633 BTUH register capacity (soft coal or oil).

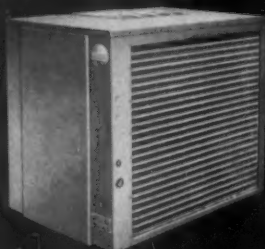
HORIZONTAL, Oil-Fired Unit. For customers with a space problem! Easily fits in attic or "crawl space"; for residential, commercial and industrial use. Three sizes: 85,000 to 125,000 BTUH capacities.



COOLING PROFITS COMPLETE CRANE LINE!

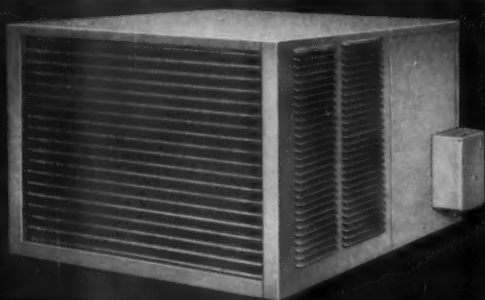
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PROPELLER-TYPE CONDENSING UNIT. Ideal for remote air-cooling. Equipped with an efficient, quiet fan for silent operation. Provides big cooling capacity in a minimum of space. Fully weather-protected. 2-, 3- and 4-ton models.



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This remote air-cooled unit can actually be installed outdoors without additional shelter. Ideal for small offices, stores, and single-room cooling. Three sizes: 2-, 3- and 5- h.p.



SELF-CONTAINED CENTRAL COOLING UNIT. Completely self-sufficient . . . may be added to any existing heating system using conventional duct work or may be installed with special Fiberglas duct system offered as a package. Ideal for attics, offices or stores. Two sizes: 22,000 and 36,000 BTU per hour capacities.

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Warehouseman Albert Ricci checks the stock of Alcoa rain-carrying equipment in the Kenney warehouse.

Advertising Pays Off for New England Distributor

"Three-Way Promotion Tripled Our Sales

Sales of Alcoa® Gutter and Downspout systems showed a 300 per cent increase at the Kenney Products Company, Providence, R.I. The reason? "A superior product plus active, hard-selling promotion—by Alcoa, by us and by our dealers," says Philip L. Kenney, president.

"Salesmen find the new Alcoa Gutter and Downspout systems easy to sell," says Mr. Kenney. "Customers soon realize the advantages of a thicker gutter with a better hanging system. But the key to getting the salesman in to see the customer lies in promotion. We get many leads from Alcoa

as a result of their national advertising, and most of them can be converted into sales. We mail reprints of all forthcoming Alcoa ads to our dealers and also alert them whenever gutters and downspouts are to be featured on Alcoa's TV shows. Alcoa runs local newspaper ads for us and, in addition, we run our own ads in local Sunday newspapers. When I first started this I offered to list any dealer who bought \$25 worth of stock. Twenty-seven dealers went along the first week. But news of the results soon spread and by the following week we had 43. Since then every dealer has

THESE DISTRIBUTORS ARE YOUR SOURCE FOR ALCOA GUTTERS AND DOWNSPOUTS

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Canaan, Connecticut
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Middletown, Connecticut
Edgcomb Steel of New England, Inc.
Milford, Connecticut
American Supply Company
New Haven, Connecticut
New Haven Reserve Supply Co.
New Haven, Connecticut
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Nichols Wire & Aluminum Company
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Des Moines, Iowa
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KENTUCKY

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MAINE

De-Lar, Inc.
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MARYLAND

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Sondik & Company of Mass., Inc.
Cambridge, Massachusetts
Western Massachusetts Supply, Inc.
Pittsfield, Massachusetts
Eastern Metal Mill Products Co.
Roxbury, Massachusetts
Valley Wholesale Building Prod. Co.
Springfield, Massachusetts
Eastern States Farmers Exch., Inc.
West Springfield, Massachusetts
General Building Products Co.
Worcester, Massachusetts

MICHIGAN

Staples Sheet Metal
Ann Arbor, Michigan
Nichols Wire & Aluminum Company
Battle Creek, Michigan

MINNESOTA

Aluminum Supply Company
Detroit, Michigan
Marlite Sales, Inc.
Detroit, Michigan
Behler-Young Company, Inc.
Grand Rapids, Michigan
Fortune Home Rebuilders
Jackson, Michigan
Mt. Morris Building Products, Inc.
Mt. Morris, Michigan

MISSISSIPPI

Girard Steel Supply Company
Duluth, Minnesota
St. Paul, Minnesota
Showalter Manufacturing Co., Inc.
Jackson, Mississippi

MISSOURI

A. Zaliner & Company
Kansas City, Missouri
Metal Goods Corporation
No. Kansas City, Missouri
Moore Heating & Sheet Metal Co.
St. Charles, Missouri
Hammond Sheet Metal Co.
St. Louis, Missouri

NEBRASKA

Strauss Lumber Company
Lincoln, Nebraska

NEW HAMPSHIRE

Edgcomb Steel of New England, Inc.
Nashua, New Hampshire

NEW JERSEY

Master Supply Company, Inc.
Atlantic City, New Jersey
Bayonne Steel Products Company
Newark, New Jersey
Passaic Sheet Metal Company
Passaic, New Jersey

NEW YORK

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The Dryolin Corporation
Hicksville, L. I., New York
Cooperative G.L.F. Exchange, Inc.
Ithaca, New York
Adam Metal Supply, Inc.
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Whitehead Metals, Inc.
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Long Island Tinsmith Supply Corp.

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Goldberg Wholesale Supply Corp.
Tarrytown, New York
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C & M Aluminum Supply Corp.
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Albermarle, North Carolina
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Charlotte, North Carolina

OHIO

O'Connor Steel Company
Akron, Ohio
Alliance Wholesalers, Inc.
Alliance, Ohio
Olivesburg General Store
Ashland, Ohio
Clem Lumber & Distributing Co.
Cincinnati, Ohio
Ohio Valley Supply Company
Cincinnati, Ohio
The Famous Furnace Company
Akron, Ohio
Cleveland, Ohio
Lorain, Ohio
Mansfield, Ohio
Newark, Ohio
Warren, Ohio
Wheeling, West Virginia
Kinsner Supply Company
Cleveland, Ohio
Farm Bureau Co-op Association
Columbus, Ohio
Palmer-Donavin Manufacturing Co.
Columbus 8, Ohio
F. O. Schoedinger, Inc.
Columbus, Ohio
Aluminum Materials, Inc.
Dayton, Ohio
Colonial Builders & Supply Co., Inc.
Toledo, Ohio
Williams and Company, Inc.
Toledo, Ohio
Simon Supply Company
Youngstown, Ohio

OKLAHOMA

Albright Steel & Wire Co.
Oklahoma City, Oklahoma

OREGON

Pacific Metal Company
Portland, Oregon

PENNSYLVANIA

The Warren Company
Erie, Pennsylvania
Counties Supply Company
Philadelphia, Pennsylvania
Stelwagon Manufacturing Corp.
Philadelphia, Pennsylvania
Anchor Sanitary Company
Pittsburgh, Pennsylvania
Architectural Building Specialties Co.
Pittsburgh, Pennsylvania
The Famous Furnace Company
Pittsburgh, Pennsylvania
Williams and Company, Inc.
Pittsburgh, Pennsylvania
Economy Supply Corporation
Pottsville, Pennsylvania
Union Roofing & Paper Co., Inc.
York, Pennsylvania

RHODE ISLAND

General Building Products Company
Providence, Rhode Island
Kenney Products Company
Providence, Rhode Island

SOUTH DAKOTA

Robbins & Stearns
Rapid City, South Dakota

TENNESSEE

Northside Products Co.
Chattanooga, Tennessee
Standard Iron & Wire Works
Chattanooga, Tennessee
C. M. McClung & Company, Inc.
Knoxville, Tennessee
Blount County Farmers Co-op
Marysville, Tennessee
R. D. Herbert & Sons Co.
Nashville, Tennessee

TEXAS

Dealers Building Materials Co.
Fort Worth, Texas
Kelley Manufacturing Co.
Houston, Texas

VIRGINIA

N. B. Handy Company
Lynchburg, Virginia
Ted Lansing Supply Company, Inc.
Richmond, Virginia

WISCONSIN

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Manitowoc, Wisconsin
Wisconsin Bridge & Iron Co.
Milwaukee, Wisconsin
Milwaukee Stove & Furnace Sup. Co.
Milwaukee, Wisconsin

of Alcoa Gutters and Downspouts"

had at least one call every Sunday the ad has run—and most have had many more."

Sales success stories like this are being repeated almost daily as Alcoa's new Care-free gutter and downspout systems gain fast acceptance with builders and homeowners. For more information on how you can benefit, call your nearest Alcoa sales office, or send coupon at right.

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and the Emmy Award winning "Alcoa Theatre" alternate Mondays, NBC-TV

Your Guide to the Best in Aluminum Value

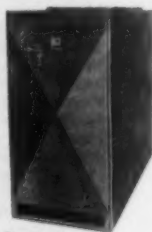


Aluminum Company of America
1892-J Alcoa Building, Pittsburgh 19, Pa.

Please send me more information
on installing Alcoa Gutters and
Downspouts.

Name _____
Address _____
City _____ State _____

You can handle any job



Oil-Fired—Basement

MODEL NO.	BTU CAPACITY
B-84-OB.....	84,000
B-95-OB.....	95,200
B-112-OB.....	112,800



Oil-Fired—Basement

MODEL NO.	BTU CAPACITY
1310-OB.....	128,800
1312-OB.....	156,800
1315-OB.....	196,000



Oil-Fired—Basement

MODEL NO.	BTU CAPACITY
B-1127-BA.....	235,000
B-1134-BC-18½.....	282,000
B-1134-BC-18½.....	335,000
B-1134-BC-21¼.....	388,000



Oil-Fired—Utility

MODEL NO.	BTU CAP.
U-84-OB.....	84,000
U-95-OB.....	95,000
U-112-OB.....	112,000
U-140-OB.....	140,000

Oil-Fired—Counterflow ▶

MODEL NO.	BTU CAP.
CF-84-OB.....	84,000
CF-95-OB.....	95,000
CF-112-OB.....	112,000

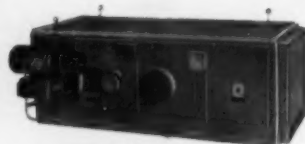


Gas-Fired—Utility

MODEL NO.	BTU CAP.
GUB-50.....	50,000
GUB-75.....	75,000
GUB-100.....	100,000
GUB-125.....	125,000
GUB-150.....	150,000
GUA-175.....	175,000
GUA-200.....	200,000

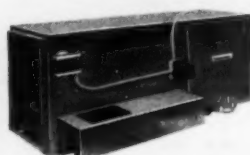
Gas-Fired—Counterflow ▶

MODEL NO.	BTU CAP.
GCA-75.....	75,000
GCA-100.....	100,000
GCA-125.....	125,000
GCA-150.....	150,000



Oil-Fired—Horizontal

MODEL NO.	BTU CAPACITY
H-84-OB.....	84,000
H-95-OB.....	95,200
H-112-OB.....	112,000
H-140-OB.....	140,000
H-185-OB.....	184,800
H-252-OB.....	252,000



Gas-Fired—Horizontal

MODEL NO.	BTU CAPACITY
GHA-85.....	85,000
GHA-100.....	100,000
GHA-125.....	125,000
GHA-150.....	150,000



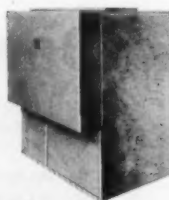
Gas-Fired—Basement

MODEL NO.	BTU CAPACITY
GLA-75.....	75,000
GLA-100.....	100,000
GLA-125.....	125,000
GLA-150.....	150,000
GLA-175.....	175,000
GLA-200.....	200,000
GLA-250.....	250,000
GLA-300.....	300,000



Gas-Fired—Gravity Furnace

MODEL NO.	BTU CAP.
GGA-90.....	90,000
GGA-110.....	110,000
GG-125.....	125,000
GG-145.....	145,000



Oil-Fired—Year-Round Air Conditioner

MODEL NO.	BTU CAPACITY
C-85-OB.....	85,000
C-112-OB.....	112,000

(Available in 2 or 3 hp, in either Air- or Water-Cooled)



All-Fuel—Gravity Furnace

MODEL NO.	BTU CAPACITY
D-520.....	90,400
D-522.....	112,800
D-524.....	126,100
D-527.....	134,400

with this line of furnaces!

American-Standard makes a unit for *every* type of home—and *every* budget. No matter what type of house you are making an installation in . . . or how much heating capacity you need . . . American-Standard makes a gas- or oil-fired furnace that's specially designed to do the best possible job of heating it.

What's more, American-Standard is the *only* manufacturer that engineers and builds every one of the major furnace components *itself*. And this is another big reason the name "American-Standard" has been the most respected name in the home-comfort equipment field for over 65 years.

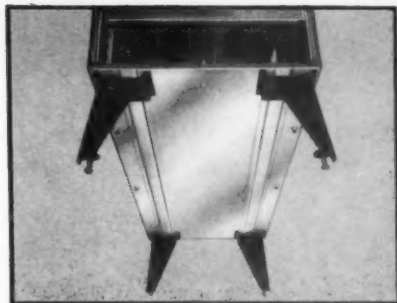
Here are 5 tested ways you can boost your sales to builders



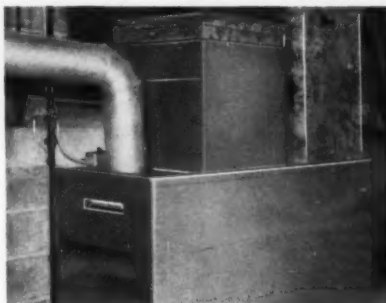
1. Choose the proper furnace for each installation. American-Standard makes *all* types of furnaces, so you can always supply a builder with exactly the right unit for his type of house. For example, instead of putting in a utility furnace (left) with cumbersome air ducts in a basement, you can specify the correct *basement* unit (right), make a more compact installation—and leave room for a cooling evaporator.



2. Install two furnaces instead of one. In houses where the layout calls for a zone heating installation, two furnaces will usually give better results than one. The builder gains an extra sales feature that customers can see; the home owner gains greater comfort; and you gain by selling *two* furnaces—and making an easier, quicker installation.



3. Promote the idea of "furnaces with legs." Sell builders on the sales appeal of furnace legs. It's a completely new idea—and *only* American-Standard offers this feature! Home owners like the way the floor is easier to clean—and *keep* clean. And the fact that in case of basement flooding, the furnace is raised so moisture can't harm it. Note the sturdy, protective bottom pan.



4. Show each new home "ready for air conditioning." Install the jacket for an American-Standard summer air conditioning evaporator on every basement furnace you install in a new home. And apply a sticker that tells how easy it is to add whole-house cooling for complete, year-round comfort. You'll help the builder sell more homes—and sell 'em faster—and you will stand to make extra profits from future cooling sales.

5. Sell builders on the benefits of our special builder promotion plan. There are two current trends in home buying: the increasing importance to customers of famous brand-name equipment, and the growing number of new home buyers who are interested in year-round air conditioning. You can help your builder customers take advantage of *both* these trends—by providing them with the American-Standard Air Conditioning Division Builder Promotion Plan.

This special plan contains building-site display material, banners and stickers for the model home, plus a full collection of exciting newspaper ads about American-Standard home-comfort equipment. See your American-Standard distributor—he'll tell you how you can put this plan to work for your customers—and for you.

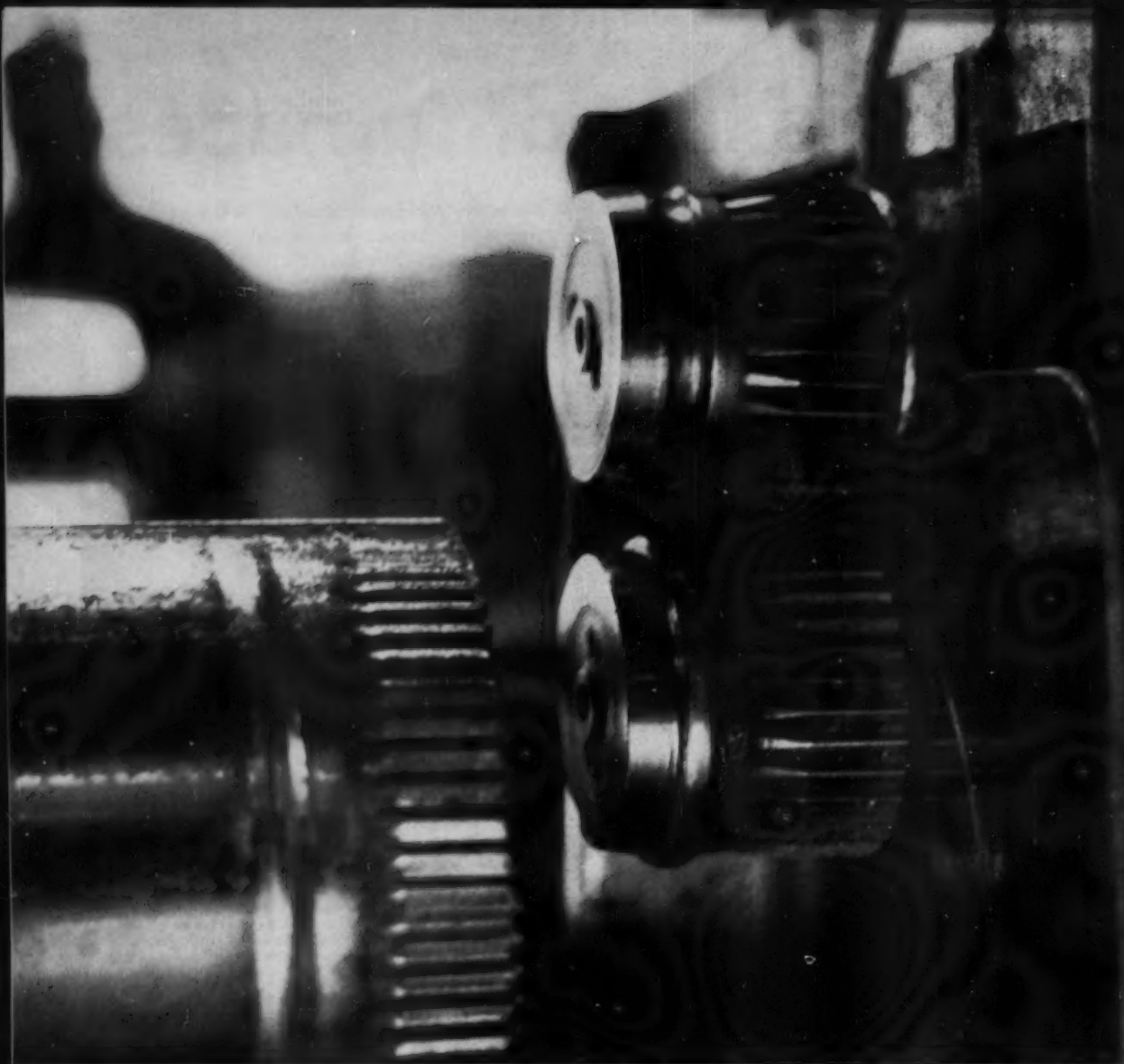


AMERICAN-Standard and Standard are trademarks of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

AMERICAN-Standard

AIR CONDITIONING DIVISION

ELYRIA,
OHIO



"NO REJECTS IN OUR SHOP! WE CRIMP CHIP-PROOF WEIRKOTE[®]"

See for yourself, as so many others have. Put zinc-coated Weirkote through its paces. Give it the business—the toughest, most tortuous jobs in the shop. Crimp it, bead it, twist it, spin it, draw it. Work it to the limits of the steel itself. Then take a close look.

Not a chip or flake mars its smooth zinc surface! And why should they? Weirkote's continuous process integrates zinc and steel so tightly that chipping and flaking do not occur and a new high in corrosion protection is assured.

Can you imagine what this means to repeated, top-notch production results? To the goodwill of your customers who will continually get the best finished products on the market? To your peace of mind, rid, at last, of annoying, costly rejects?

In spite of all these advantages, Weirkote's cost is low. One more good reason why you should write today for a free 12-page booklet that explains in detail how Weirkote can help you. Weirton Steel Company, Dept. J-8, Weirton, West Virginia.



**WEIRTON STEEL
COMPANY**

WEIRTON, WEST VIRGINIA

a division of

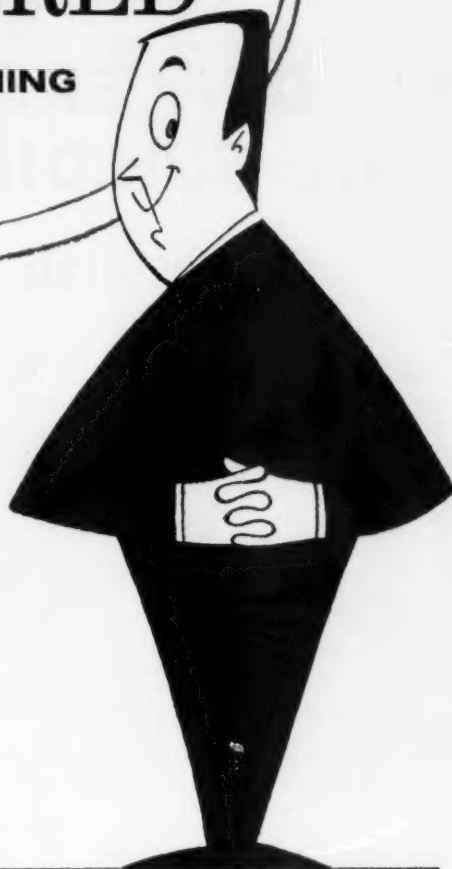
NATIONAL STEEL  CORPORATION

All us
Rangaire dealers
sell a complete line of
**BUILDER-
ENGINEERED**

YEAR-ROUND
AIR CONDITIONING

(Do You?)

► Designed — Engineered —
Manufactured — Priced —
to the Builders needs!



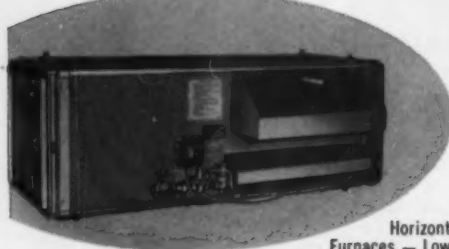
Rangaire Dealers sell 25% more efficiency and up to 43% less operating cost — it's a combination that sells . . . sells . . . sells. Write for details.

Rangaire

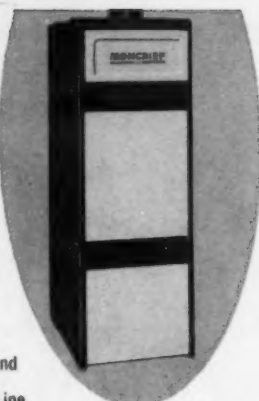
Builder-Research in Action!

Cobell Industries Inc., Cleburne, Texas, Dept. 2A

Factory Assembled and Wired Upflow Winter Air Conditioners — compact in Design, Substantial in Construction — for Basement, Closet or Utility Room Installation—Approved for Close Clearances—Adaptable for Cooling — Gas and Oil Fired Complete Line!



Horizontal Furnaces — Low and Compact for Limited-Space Installations — Complete Line of Gas and Oil Fired Models!



PREMIUM Design, Construction and Performance . . . sound reasons why Moncrief has been satisfying customers since 1895.

For more than 60 years, Moncrief has kept faith with Furnaces and Air Conditioners that incorporate design achievements and manufacturing experience, gained by concentrating on excellence . . . making today's Moncrief Units sturdier and more trouble-free than ever.

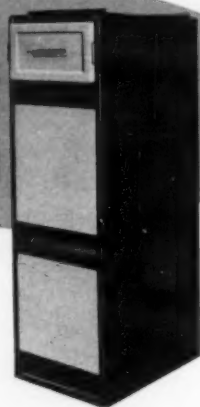
To offer this kind of satisfaction to your customers will cost you nothing, and can be exceptionally profitable!

DEALERS with a FUTURE are BUILDING SATISFACTION with **MONCRIEF**



Basement Type Winter Air Conditioners — Attractive Console Cabinets — Designed to Burn either Gas or Oil — Available in Assembled and Wired Oil Models!

Counterflow Winter Air Conditioners — Heavily Constructed, Compactly Designed — Approved for Close Clearances — Gas Fired and Oil Fired!



COMPETITIVE Pricing, with prompt service from your wholesaler . . . sensible selling practices have placed Moncrief in the forefront among the largest selling complete lines.

Moncrief leads with competitive pricing because Moncrief's high rate of sales permits cost-reducing manufacturing practices that make really competitive prices possible.

So, if you want to build satisfaction, while realizing more satisfactory profits, call your Moncrief Wholesaler, now!



Underwriters' Listed Air Cooled Condensing Units — 2, 3 or 5 H.P. Capacities



Winter Air Conditioner — Upflow Type, with Plenum Evaporator Coil



Winter Air Conditioner — Basement Type, with Plenum Evaporator Coil



Winter Air Conditioner — Counterflow Type, with Counterflow Evaporator Coil



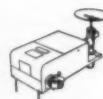
Horizontal Furnace — with Duct Type Evaporator Coil



Blower-Coil Unit — Compact Air Handling Combination



Gas Unit Heater — 5 Models



Conversion Gas Burner

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
SINCE 1895

FURNACE PIPE AND FITTINGS



SAVE MONEY

with General Electric Form G blower motors

You save money in three areas when you sell furnaces equipped with General Electric blower motors:

SAVES ON INSTALLATION—quick-connect terminals cut wiring time 50 per cent; a speed nut permits fast outside connection of conduit fitting. Compact size makes handling easy and saves space, whether mounted on top the blower or inside it.

GET EXTRA DEPENDABILITY. Moisture-resistant insulation, doubled lubrication life (because of a 50% larger oil supply and efficient oil retention), and the famous G-E wear-resistant switch mean satisfied customers and repeat sales.

FAST, LOCAL SERVICE. G.E.'s network of Small Motor Service Stations are as handy as your telephone. G-E replacement motors, also available locally, provide top quality and long-life performance.

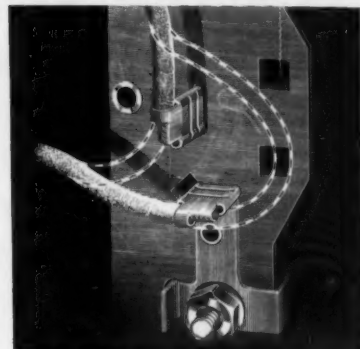
To keep installation and service costs down, specify G-E blower motors . . . available in split-phase, shaded-pole, capacitor-start, or permanent-split-capacitor for all makes of furnaces. Section 702-97, General Electric Company, Schenectady 5, N. Y.

Progress Is Our Most Important Product

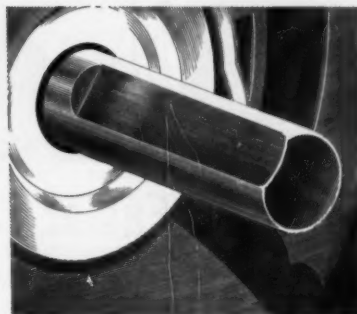
GENERAL  ELECTRIC



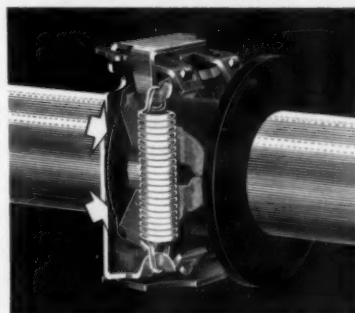
QUICK-CONNECT TERMINALS offer a more rapid wiring method, yet do not interfere with conventional studs.



FAST ROTATION CHANGE (simply switch plug-in lead connectors to change rotation) minimizes service stocks needed.



SHAFT PROTECTION—new gun-metal-like treatment of shaft resists rust so that pulleys, etc., are always easy to remove.



QUIETER, DEPENDABLE SWITCH has a special washer to cushion start-stop click, maintains positive snap action.



Easier Fabrication, Healthier Profits

Because a modern, up-to-the-minute decor is essential for corporate prestige, progressive firms specify interior trim of carefree stainless steel. Stainless steel's lasting beauty means lower maintenance costs.

J&L Stainless steel can mean healthier profits for you. The gauge accuracy, uniform finish, uniform temper and consistent quality of J&L

stainless mean easier fabrication, less wear on tools, more accurate shop work that reduces costly on-site labor.

J&L leads the industry in melt shop standards for stainless steel—the point where consistent quality starts and healthier profits begin.

Write today for your copy of the J&L Sheet and Strip Manual for information on the selection and fabrication of Consistent Quality Stainless Steel.

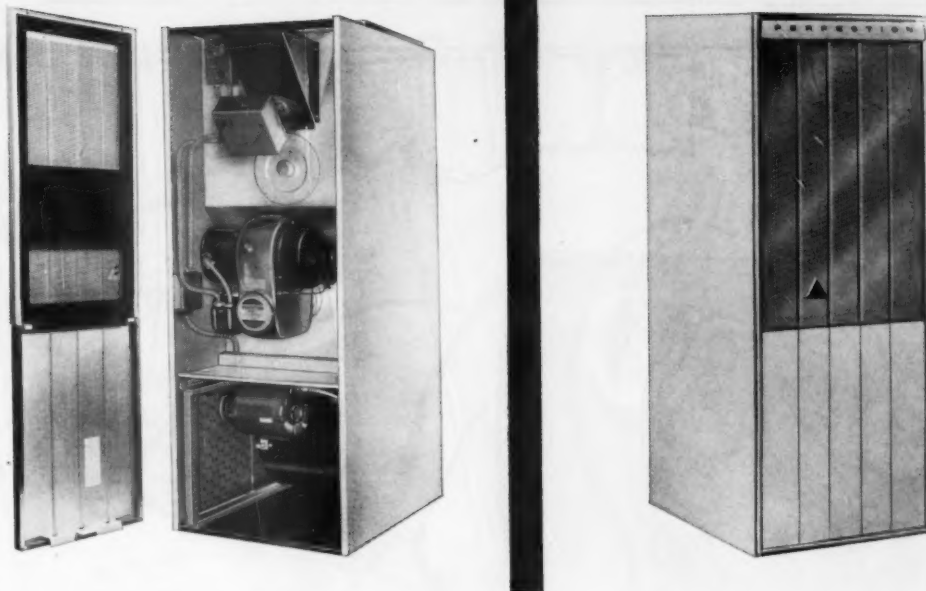


Plants and Service Centers:
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STAINLESS
SHEET • STRIP • BAR • WIRE

Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • Box 4606, Detroit 34



An open and shut case of good design

If you're looking for a better furnace, there's no need to put them *all* on trial. Perfection pleads guilty of good design on every count! At last all objections have been overruled in this brilliant new line, packed with features that furnace men have wanted for years. Examine the case:

EXHIBIT "A" (Styling) The same smart styling that won world fame at the Brussels Fair, where Perfection was the only furnace chosen to represent "residential heating of the future".

EXHIBIT "B" (Regulaire) Only Perfection gives you the even heat circulation of famous Regulaire, the patented electro-magic blower control that matches heat supply to heat loss like no other furnace can.

EXHIBIT "C" (Installation) All controls are factory wired and mounted. There's nothing to assemble, no internal wiring. Even the stack control and draft regulator are inside the cabinet, already mounted!

EXHIBIT "D" (Efficiency) Radical new multi-jet fuel blender is the most efficient ever devised, vaporizes the fuel more completely, converting every ounce of oil into instant flaming heat. Aluminized radiation shield forms inner cabinet that cuts heat loss to the bone.

EXHIBIT "E" (Silence) New fuel-blending principle puts a virtual end to burner pulsation. Slow-speed, rubber-mounted blower is free of noisy vibration, yet develops ample capacity for cooling.

EXHIBIT "F" (Model Range) Perfection oil furnaces are available in a wide range of upflow and counter-flow models from 84,000 to 140,000 Btu output. Three distinct series include the price-competing TRIMLINE; the STYLIST for top furnace quality at a medium price; and the famous REGULAIRE, ultimate in oil furnace design.

The evidence is overwhelming. The verdict is Guilty . . . of Good Design. Now you be the judge. See why it won't pay to compete *against* Perfection, when it's so easy to compete *with* it.

Be a **PERFECTION**ist this year —
WRITE TODAY FOR FULL DETAILS AND NAME OF
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THE FORWARD TREND IN HOME COMFORT

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DIVISION OF **HUPP**
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If you do business anywhere in the 37 Eastern states, let us show you how *Dodge Reports* can improve your operation and increase your profits.

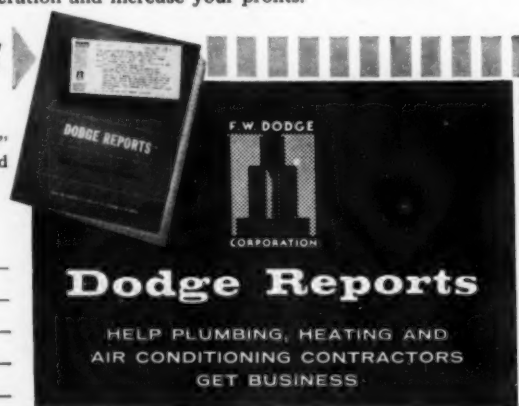
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F. W. Dodge Corporation, Construction News Division,
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City _____ Zone _____ State _____



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WORLD'S THINNEST UTILITY PLIER

**gets in and grips
where no other tool
will do the job!**

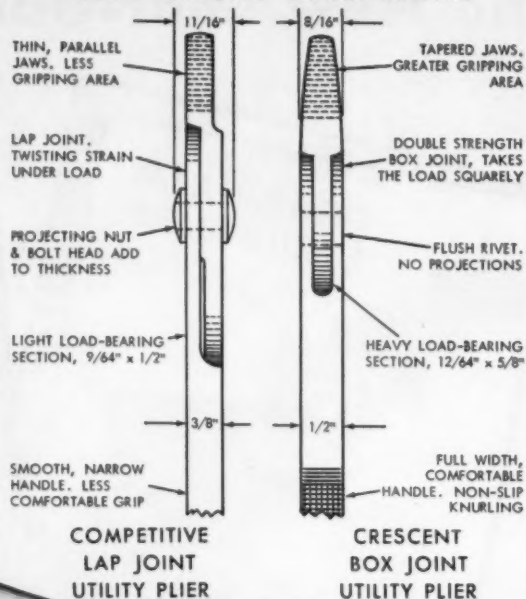
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dealer can't supply you,
order from the factory.
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CRESCENT TOOLS

Give Wings to Work

*Sign of the Artisan
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Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

What else does your Stainless Steel Distributor offer besides fabricating and metallurgical assistance?

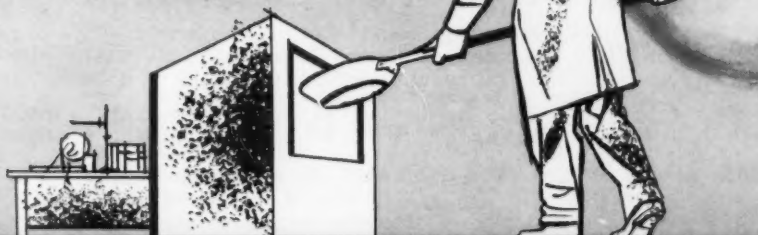
Difficult fabricating and metallurgical problems, arising when you may least expect them, can slow down or halt the flow of production. Unless such problems are promptly solved, they can cost you important money. This is where your Republic ENDURO® Stainless Steel Distributor can be of invaluable help. Through him, the know-how and experience of Republic's metallurgical experts are always available.

But this is only one of the valuable aids offered by your Steel Service Center. As a warehouse expert, your Republic Distributor is able to maintain large and diversified stocks of stainless steel with maximum efficiency and economy. He can handle needed steel stocks for you, thereby saving you money on such overhead costs as manpower, equipment, space, scrap, wastage, taxes, and insurance. And your Steel Service Center can help you maintain tight production schedules by making quick deliveries of stainless steel, as needed, cut to your specifications.

Now is the time to become more fully acquainted with these and other services offered by your Republic Stainless Steel Distributor. Contact him at one of the Steel Service Centers listed below.

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World's Widest Range of Standard Steels and Steel Products



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Reynolds Aluminum Supply Company,
Birmingham,
J. M. Tull Metal & Supply Co., Inc.,
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ARIZONA

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Phoenix.

ARKANSAS

Hammond Steel Metal Company,
Fort Smith,
Little Rock.

CALIFORNIA

Allen Fry Steel Company,
Los Angeles,
Ducommun Metals & Supply Co.,
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Los Angeles 54,
National City,
E. M. Jorgensen Company,
Los Angeles 54,
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FLORIDA

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Tampa,
Reynolds Aluminum Supply Company,
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Jacksonville,
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Indianapolis 2,
Ohio Valley Hardware & Roofing
Company,
Evansville.

KANSAS

Marsh Steel Corporation,
Wichita.

KENTUCKY

Hubbell Metals Inc.,
Louisville,
Reynolds Aluminum Supply Company,
Louisville,
Williams and Company, Inc.,
Louisville 3.

LOUISIANA

Marsh Steel Corporation,
Baton Rouge.

MARYLAND

Hill-Chase Steel Company of
Maryland,
Baltimore 3.

MASSACHUSETTS

Edgcomb Steel of New England,
Inc. (Boston),
Nashua, New Hampshire,
Hawkrige Brothers Company,
Boston 10.

MICHIGAN

Hicon Steel Company,
Detroit 16.

MISSOURI

Hammond Steel Metal Company,
St. Louis 5,
Hubbell Metals Inc.,
Kansas City 16,
St. Louis 3,
Marsh Steel Corporation,
North Kansas City 16.

NEW HAMPSHIRE

Edgcomb Steel of New England, Inc.,
Nashua.

NEW JERSEY

Albury Steel Company,
Perth Amboy,
Atlas Steel Supply Company,
Morris Plains,
Benedict-Miller, Inc.,
Lyndhurst,
International Corporation,
Hillsdale,
Miller Steel Company, Inc.,
Hillsdale.

NEW YORK

Atlas Supply Company, Inc.,
Bronx 58,
Beals, McCarthy and Rogers, Inc.,
Buffalo 5,
Brace-Mueller-Huntley, Inc.,
Buffalo,
Rochester,
Syracuse,
Bruce and Cook, Inc.,
New York 38,
Eastern Metals Warehouse, Inc.,
Albany,
Ernst Iron Works,
Buffalo,
Follansbee Metals Corp. of New
York,
Rochester,
Hamley, Inc.,
Brooklyn 32,
K. & S. Metal Supply, Inc.,
Long Island City.

NEW YORK (Cont.)

Metal Purchasing Company, Inc.,
New York 1,
Schwarz and Cohn, Inc.,
Brooklyn.

NORTH CAROLINA

Reynolds Aluminum Supply Company,
Raleigh,
Vance Iron and Steel Company,
Charlotte.

OHIO

The Ohio Metal & Manufacturing
Co.,
Dayton 2,
Varys Brothers, Inc.,
Columbus 8,
Williams and Company, Inc.,
Cleveland 14,
Cincinnati 29,
Columbus 8,
Toledo 12.

OKLAHOMA

E. M. Jorgensen Company,
Tulsa.

OREGON

American Steel Warehouse
Company,
Portland 14,
Pacific Metal Company,
Portland 9.

PENNSYLVANIA

Hill-Chase and Company, Inc.,
Philadelphia 34,
Potts-Farrington Company,
Philadelphia 29,
Horace T. Poth Company,
Philadelphia 34,
The Warren Company,
Erie,
Williams and Company, Inc.,
Pittsburgh 33.

RHODE ISLAND

Edgcomb Steel of New England,
Inc.,
Slatersville.

TENNESSEE

Hubbell Metals Inc.,
Memphis,
Mid-States Steel, Inc.,
Nashville,
Reynolds Aluminum Supply Company,
Memphis,
Nashville,
Siskin Steel and Supply Company,
Incorporated,
Chattanooga,
Vance Iron and Steel Company,
Chattanooga.

TEXAS

E. M. Jorgensen Company,
Dallas,
Houston.

UTAH

Structural Steel and Forge
Company,
Salt Lake City,
ZCHL Wholesale Distributors
Salt Lake City.

VERMONT

Edgcomb Steel of New England, Inc.,
Bennington.

VIRGINIA

Dominion Culvert and Metal
Corporation,
Roanoke 5,
Reynolds Aluminum Supply Company,
Richmond.

WASHINGTON

Pacific Metal Company,
Seattle.

CANADA

Drummond McCall and Company,
Ltd.,
Toronto, Ontario
Montreal, Quebec

Questions and Answers on METALWORKING MACHINERY

...for those concerned with specifying or buying new equipment

QUESTION: Who is the largest national supplier of metalworking machinery equipment?

ANSWER: Ryerson is the largest by far - offering over 3800 different types and models produced by almost 100 of the nation's leading manufacturers.

QUESTION: What types of machinery does Ryerson offer?

ANSWER: The most complete line of sheet metal shop equipment available anywhere, including the best type and right capacity.

Bending	Drilling	Pressing	Rolling	Shearing
Braking	Forming	Punching	Sawing	Welding

Also a complete line of material handling equipment and shop tools.

QUESTION: What advantages do I get by buying from Ryerson?

ANSWER: (1) Widest selection, (2) Unbiased recommendations, (3) Double guarantee: the manufacturer's warranty backed by Ryerson assurance of satisfaction, (4) Greater continuing interest because we also value your steel and aluminum buying potential, (5) A nation-wide organization of machinery specialists backed by 117 years of Ryerson experience in working with metal fabricators and in using much of the equipment in its own steel service operations.



MACHINERY DIVISION
RYERSON STEEL®

Member of the  Steel Family

PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH
BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • DALLAS • HOUSTON • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Industry Growth Is Individual Responsibility



PROFITABLE GROWTH under the highly competitive conditions which face most industries depends on the industry's ability to hold down its operating costs while striving for better understanding among its customers of how to purchase its products.

How to achieve these goals at the sheet metal contracting and warm air heating-air conditioning dealer-contractor levels is one of the problems that all segments of the industry are trying to solve. However, the degree of success enjoyed by any individual in the industry will be largely the result of his own effort.

Walter F. Limbach, immediate past president of the Sheet Metal and Air Conditioning Contractors National Association, in his president's annual report, outlined 10 ways various sheet metal contractors are solving their problems. Mr. Limbach mentioned:

- 1) Abandoning reliance on "protectionism."
- 2) Integrating their operations.
- 3) Creating larger economic units.
- 4) Increasing their technical and engineering skills.
- 5) Doing effective research.
- 6) Investing in better plants and tools.
- 7) Developing new and more vigorous merchandising practices.
- 8) Improving the quality of their personnel.
- 9) Working toward more competitive fabrication labor costs.
- 10) Investing in stronger associations.

(Mr. Limbach's report appeared in July American Artisan, pages 62-67.)

Warm air heating dealer-contractors, too, can improve their competitive positions and increase their profits by adapting several of Mr. Limbach's suggestions to their operations and by closer control of employees' work assignments to minimize surplus manpower on their jobs. They can also schedule delivery of supplies to job sites to enable workmen to apply their time more effectively.

Actively promoting the benefits of properly installed air distribution systems and equipment to home owners and businessmen will produce more selective prospects for warm air heating, summer air conditioning, ventilating or material handling systems.

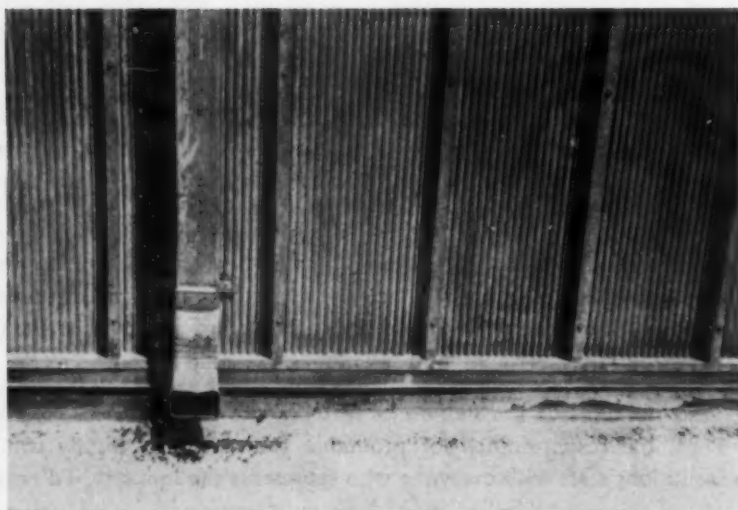
Increased use of sales tools designed to assist buyers of the industry's products will enable contractors and dealer-contractors to present stronger arguments for their proposals and quicker acceptance of any recommendations which cost more than "minimum systems."

It is in the hands of the individual to teach the prospect how to buy wisely. Thus, the responsibility for profitable growth under highly competitive conditions rests with everyone who represents the industry. To reap the rewards of this responsibility, individuals must work with individuals to best serve the interests of the industry's customers.

Artificial Patina 'Ages' Walls On Copper-Sheathed Church



CORRUGATED COPPER PANELS, stained to duplicate the patina of old copper, set off architectural style of new Denver church



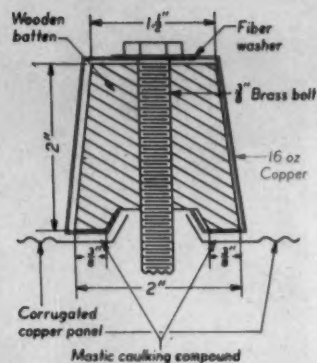
BATTEN SEAMS BETWEEN vertical corrugated copper panels are secured by $\frac{3}{8}$ in. copper bolts 30 in. apart, and sealed with fiber washers

EXTERIOR WALLS OF copper panels corrugated on 1 in. centers and artificially stained to duplicate the blue-green patina of aged copper make the new Augustana Lutheran Church an outstanding landmark in Denver. The 22 ft copper sheet walls, plus the fascia, copings, column caps, scuppers, downspouts and flashing consumed 22,000 pounds of 16 oz cold rolled copper sheet. The job was done by William Van Genderen, the Wm. Van Genderen Co., Denver.

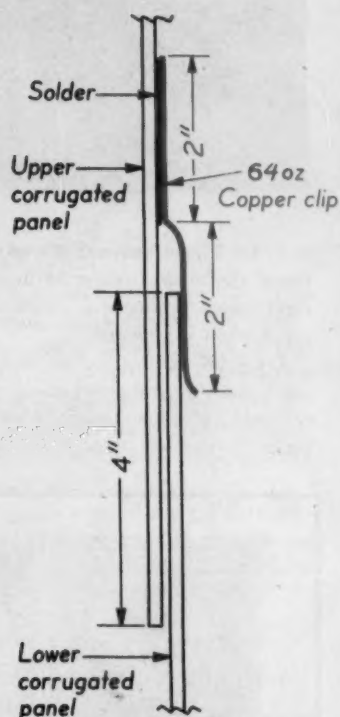
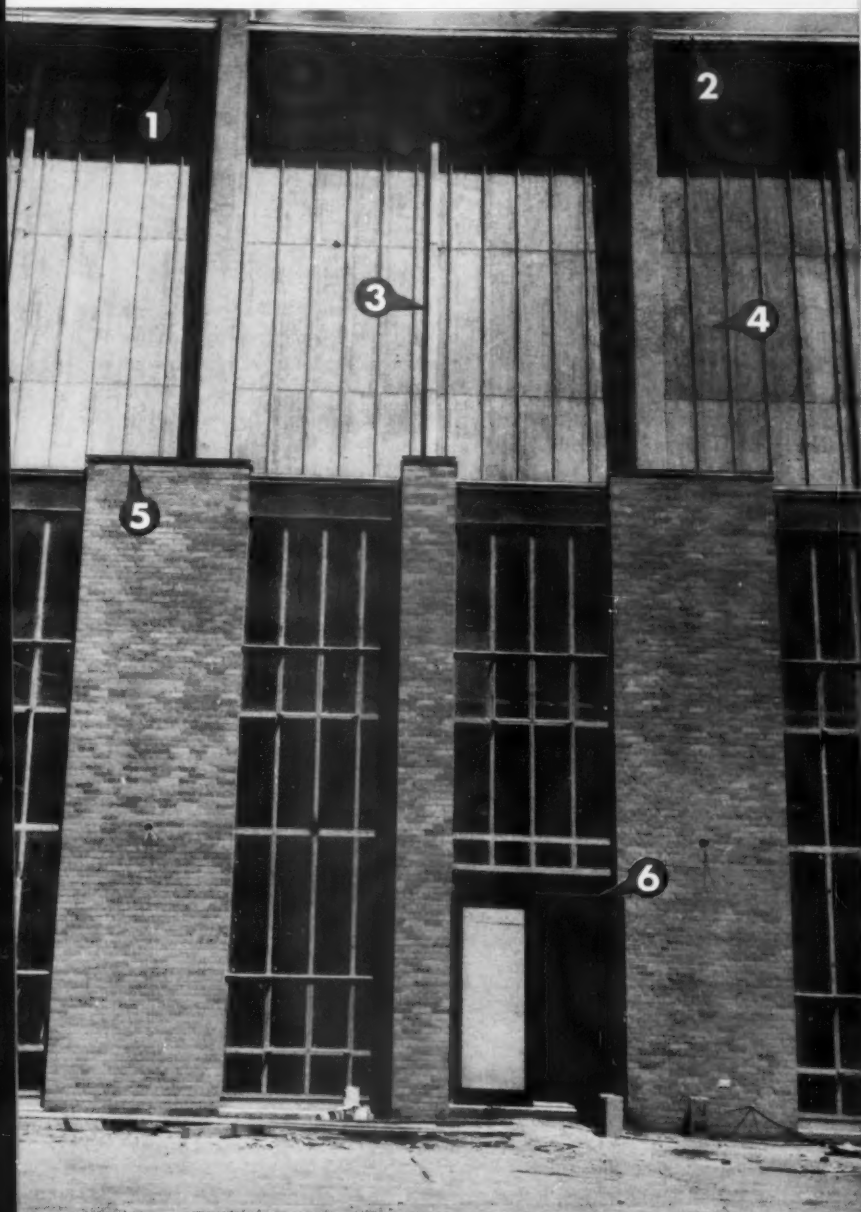
Standard procedures were used for fabricating and installing fascia, copings, downspouts and other copper components of the building.

The 8 ft vertical copper panels, however, were fabricated to the architect's specifications for corruga-

Vertical corrugated copper panels, stained to a mellow blue-green hue, prove sheet metal's place in modern architecture . . . and special corrugating dies, lap joints and battens testify to the know-how of the sheet metal contractor



1 BEVELED WOOD BATTEN with $\frac{1}{8}$ in. brass bolt and washer has recessed edge to secure ends of corrugated panels and 16 oz sheet copper cover



2 SPECIAL LAP JOINTS soldered 3 in. apart across backs of panels provide tight fit with panels below, permit $\frac{1}{2}$ in. movement between panels at points of overlap

Extensive use of copper assures weathertight building

- 1 Flashing
- 2 Coping
- 3 Conductor pipe
- 4 Copper panels
- 5 Column caps
- 6 Door trim and flashing



CORNER JOINT between vertical panel and flashing is examined by contractor William Van Genderen and Bill Callahan, field superintendent

tions on 1 in. centers. Each exterior panel was made from a 24 in. wide sheet which produced a 20 in. wide panel when corrugated.

A special corrugating die was specially made to fit the company's power brake. Multiple operation of the brake corrugated the 24 in. wide

sheets on 1 in. centers as the plans specified.

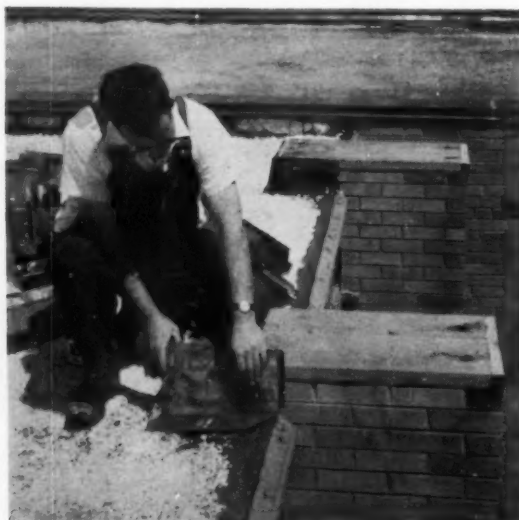
Wood Batten Holds Seam

The vertical sheets are joined at the sides by vertical batten seams. The batten for the seam (Fig. 1) was

fabricated from a 2×2 in. wood strip beveled from the 2 in. width on the inner edge to $1\frac{1}{2}$ in. at the outer edge. A recess was cut in the center of the inner edge, $1\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep, to accommodate the edges of the corrugated panels and the two edges of the 16 oz copper



COPPER COLUMN CAPS were fabricated in the company's shop to architect's rigid dimensions for masonry columns



COPPER COUNTER-FLASHING is installed by mechanic before placement of column cap, gravel stop and fascia on church roof

TWO CREWS INSTALL sheet metal on Sunday School building. Men on roof are installing copper fascia; crew at side of building is installing 16 ga black steel mullion covers



sheet which covers the batten. A caulking compound was applied where the panel and the batten join.

Bolts Secure Batten

Then the batten was fixed tightly in position by tightening $\frac{3}{8}$ in. brass

bolts inserted through the batten and its copper cover at 30 in. intervals. The bolts were secured into nuts which had been welded previously into the structural members of the building. Fiber cap washers beneath the heads of the bolts assure weather-tight seals.

Lap Joints Secure Panels

A 4 in. horizontal lap joint (Fig. 2) is installed where the lower edges of each row of panels overlap the tops of the panels below. To provide a tight fit across the full width of each panel joint, 64 oz copper clips were soldered 3 in. apart across the back of each upper panel, $4\frac{1}{2}$ in. above the bottom edge of the panel to provide a $\frac{1}{2}$ in. tolerance for movement between upper and lower panels at the point of overlap.

Portable Welder Speeds Work

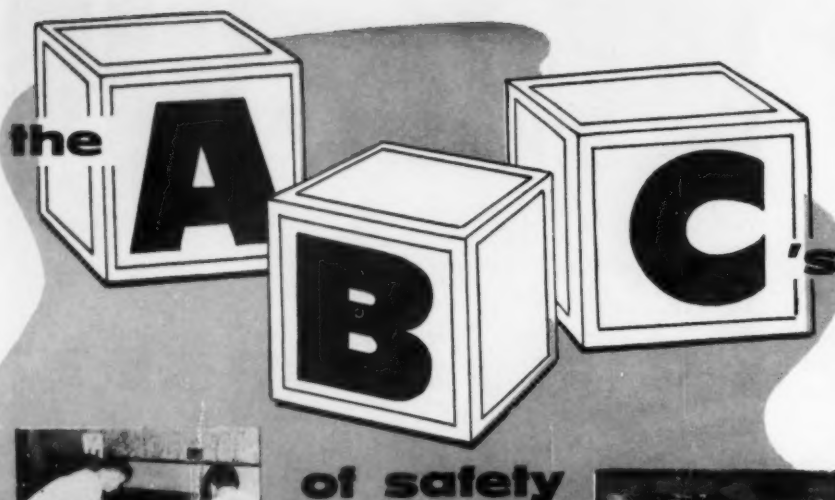
In addition to the copper work on the church, the sheet metal firm installed 16 ga black steel covers on mullions between window sections in one wing of a Sunday School building.

A portable, gasoline-driven electric welder speeded up installation of the mullion covers. The company obtained six of these welders for use on outside work when they discovered how much they could cut job site fabrication and erection costs.

Bill Callahan, field superintendent, directed the fabrication and erection work.



THREE APPLICATIONS of sheet metal combine beauty and long life for the structure: 1) column cap; 2) counter-flashing; 3) gravel stop



in the shop



and on the job

THIS IS THE second of four articles written by a man who has spent his entire career in the sheet metal industry. His experiences have accumulated out of association with large and small companies which handle both custom work and production jobs regularly. His recommendations are based on first-hand experience helping sheet metal contractors improve safety conditions in the shop and on the job.

Industry people who have reviewed this series recommend that contractors tear out each article and post it on their bulletin boards so employees can benefit from the points discussed.

Safety Check-List Cuts Welding Risks

**Here's a list of dos and don'ts which
every welder should memorize and practice,
in the field or in the shop**

BY CONSTANTLY IMPROVING their products and recommending new techniques, manufacturers of welding equipment have eliminated most of the mechanical risks involved in welding, and placed the responsibility for safety in the hands of the user, over whom they have no control.

Welding accidents in the sheet metal shop or on the job can be virtually eliminated by observing a few rules of caution in operating the equipment, and by maintaining a constant safety program which calls for regular inspection and maintenance

of equipment and working areas.

Following are some capsuled suggestions designed for use by sheet metal contractors as the nucleus of their shop and field welding safety programs.

Remove a leaking acetylene tank from the building immediately to avoid an accumulation of explosive gas.

Make all hose connections to an acetylene tank with the proper clamps or connectors. Never use a wire for this purpose.

Never weld in or near a room containing

flammable vapor from paint spraying.

When welding or cutting in the vicinity of combustible materials, be sure that fire hose, chemical extinguishers and fire pails are nearby.

Sweep wood floors clean, wet them down, and whenever possible, cover them with a metal protector before beginning to weld over them.

If slag or sparks can drop through the floor, be sure the floor below contains no combustible materials.

Use sheet metal guards, asbestos blankets, or asbestos curtains wherever they are needed to confine slag,

sparks and glare to the immediate vicinity of the welding.

Beware of Poisonous Gases

Gas emitted by welding on galvanized material is hazardous. Proper ventilation must be assured before beginning to weld this type of material.

Never work alone in tanks or boilers when cutting or welding.

Never, under any circumstances, start to cut or weld tanks of any description or size without first determining whether dangerous gases or dust are in the tank. Blow a tank out with steam until it is thoroughly cleaned. Acid tanks should be thoroughly rinsed several times to prevent forming of hydrogen. Always examine the inside of the tank first with a flashlight or safety type electric light.

When a weld or cut is complete, quench the work before leaving, or mark it to show that it is still hot.

Never use a cylinder, empty drum or barrel as a support for your work.

Keep Hose in Good Repair

Examine the welding hose carefully for leaks, cuts and worn places, at least once a week. Place it under normal working pressure, immerse it in a bucket of water and watch for bubbles. Gathering bubbles indicate a leak. The faulty section should be removed and the hose re-spliced by means of a standard connector.

Use no oil or grease near oxygen or any equipment through which oxygen passes. Oil or grease may ignite in the presence of oxygen under pressure. Never use greasy gloves or rags when handling oxygen cylinders or in working around them.

Keep the acetylene cylinder upright, unless it is impossible to do so; then raise the outlet a little.

Don't Attempt Major Repairs

Never use any defective welding equipment or attempt to repair anything other than the hose or electric cable lines.

Do not place anything on top of an acetylene tank because of the possibility of damaging safety plugs.

Do not leave the tip of the welding torch inserted in a barrel or tank.

Use warm water, never boiling water or a direct flame, to thaw out an outlet valve on an acetylene or oxygen tank that has become clogged with ice.

Crack Cylinder Carefully

Never crack the acetylene cylinder near other welding, cutting work, or any possible source of ignition. Always keep the acetylene outlet pointed away from the oxygen cylinder.

Flush out the welding hose with oxygen before using it. Never use acetylene gas for this purpose.

Always leave the "T" wrench on welding tanks in order that the cylinder

may be shut off quickly in an emergency.

Never, under any circumstances, look directly into the welding arc with the naked eye.

Be sure helmets and shields are not cracked.

Always protect the colored glass in the welder's goggles from metal spatter by using a plain glass that can be replaced easily and inexpensively.

Always keep face, hands and arms covered to prevent burns from the rays.

Wear leather gloves to protect hands from spatter, arc rays and hot objects.

For overhead welding, wear a welder's cape to protect the neck and shoulders.

Respect Electrical Hazards

Do not operate the polarity switch while welding.

Do not operate the voltage or current regulator while welding.

Always pull the main switch before starting to work on live circuits which are supplying power.

Always ground the arc welding set to prevent shock from stray currents.

Always leave the electrode holder on an ungrounded material, or in a special holder; never on a metal table or any other grounded device.

While welding or working with a burner or hot or molten metals, protect yourself with a leather apron and leather gauntlets.

A GOOD SAFETY PROGRAM means less lost time, higher output per employee per day and more profit for the heating and air conditioning dealer-contractor and sheet metal contractor. Most important, however, it protects your employees from harm.

Any company can inaugurate and maintain a successful safety program if these seven basic requisites are observed in the plan: 1) management must

maintain an active interest in the program; 2) responsibility must be delegated; 3) all equipment must be inspected periodically; 4) a record system must be maintained to show the who, where and why of all accidents; 5) all foremen must be thoroughly trained in the subject of safety; 6) a continuous safety training program should be maintained at the worker level; 7) all the safety aids available from insurance companies and

other excellent sources should be utilized.

American Artisan will publish during the next few months a number of suggestions on how to reduce accidents in specific areas of sheet metal work. These will include field erection of duct work, acetylene and electric welding, cutting and forming sheet metal, riveting, and use of sheet metal forming machines. This month, welding is discussed.

Use simplified method to develop a

Square-to-Rectangular Transition Wye Branch

Cut valuable layout time by developing this useful fitting from a half front view drawing without using triangulation

IN ANY SHEET METAL layout problem, the fitting should be studied thoroughly to determine which layout procedure should be followed to get the best result with the fewest drawings and lines.

In the simplified method drawing for the square-to-rectangular transition wye branch, note in the front and end views (Figs. 1 and 2) that the fitting is symmetrical about the vertical center lines. This analysis tells us the patterns can all be developed from a half front view drawing. An end pattern (Fig. 4) and a crotch pattern (Fig. 5) must also be drawn before the front and back pattern (Fig. 6) can be made. If the front and back pattern (Fig. 6) is laid out first, lines OR and XZ must be developed by triangulation.

Following is a step-by-step analysis of the pattern problem.

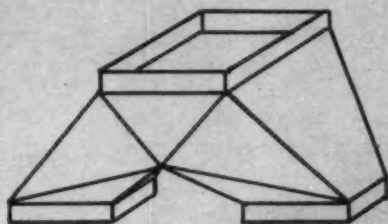
Simplified Method, Fig. 3—

a) Draw a vertical center line and label it CL. On line CL establish point 15 at the base. From point 15, measure upward the dimensions shown on the end view (Fig. 2), which are $\frac{1}{4}$, $\frac{5}{8}$, $\frac{7}{8}$ and $\frac{1}{4}$ in. Identify the points established as 16, E, C and A. Through these points draw lines to the right and perpendicular to the center line.

b) From points A and C measure $\frac{3}{4}$ in. to the right and locate points

Can you develop this pattern in 30 minutes?

Here's a new and accurate approach to the development of sheet metal patterns that will cut costly layout time. The method applied to this month's fitting can be used as a guide to develop related patterns and solve other problems encountered at the layout bench



B and D. From points 15 and 16 measure first $\frac{1}{2}$ in., then $\frac{1}{4}$ in. to the right and locate points F, H, G and J. Draw lines BD, DH, HJ, DE and FG. Draw a work line connecting points E and H, and label this line K.

End Pattern, Fig. 4—

a) Draw a vertical work line CL. At the base of this line establish point 11. From Fig. 3, transfer lengths JH, HD and DB to the work line (Fig. 4). Label the points 12, 13 and 14. Through the points draw lines perpendicular to and extending on both sides of line CL.

b) Transfer half the given $\frac{3}{4}$ in. (Fig. 2) to the right and left of points 11 and 12 and label the established points T, U, R and S. Transfer half the given $1\frac{1}{2}$ in. length (Fig. 2), or $\frac{3}{4}$ in., to the right and left of points 13 and 14

(Fig. 4) and label these points O, P, M and N. Draw lines MO, OR, RT, NP, PS and SU.

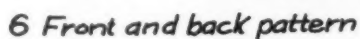
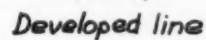
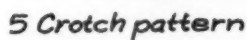
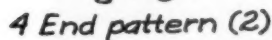
c) From point O draw a line parallel to the vertical center line. The lateral distance from this line to point T is the fall distance L.

Crotch Pattern, Fig. 5—

a) Draw a vertical work line CL. At the base of line CL establish point 6. From Fig. 3, transfer length GF to the center line (Fig. 5) above point 6, and locate point 7. Transfer length FE and locate point 8. Again transfer length FE and locate point 9. Transfer length GF and locate point 10. Through these points draw lines perpendicular to and extending on both sides of the work line.

b) Measure half the width of the branch duct ($\frac{3}{8}$ in.) to the right

TEAR OUT THESE PAGES AND FILE THEM FOR FUTURE REFERENCE



NOTE: THESE PATTERN dimensions should be multiplied by the predetermined ratio figure to produce the actual size of the fitting needed

and left of points 6, 7, 9 and 10. Identify these points as 4, 5, 2, 3, X, Y, V and W.

c) Measure half the width of the main duct ($\frac{3}{4}$ in.) to the right and left of point 8. Identify these points as Z and 1. Draw lines 4-2, 2Z, ZX, XV, 5-3, 3-1, 1Y and YW.

Front, Back Pattern, Fig. 6—

a) Draw a $1\frac{1}{2}$ in. horizontal line. Label its terminals as points 15 and 16. From both points draw lines downward and perpendicular to the line. From points 15 and 16, measure down $\frac{1}{4}$ in. and locate points 17 and 18. Set a compass at line length DE (Fig. 3) and with point 17 (Fig. 6) as center, draw an arc to the right and below this point. With point 18 (Fig. 6) as center and radius DE, cut the arc drawn from point 17 and label the point 23.

b) Draw a right angle. Transfer fall distance L (Fig. 4) to the horizontal leg and transfer line length K (Fig. 3) to the vertical leg. The hypotenuse LK is the developed line.

c) With point 23 (Fig. 6) as center and developed line LK as radius, draw arcs below and to the right and left of point 23. Set a compass at line length OR (Fig. 4) and with points 17 and 18 (Fig. 6) as centers, cut the two arcs LK and identify the intersections as points 19 and 25.

d) Set a compass at line length HF (Fig. 3) and with points 19 and 25 (Fig. 6) as centers, draw arcs to the right of point 19 and to the left of point 25. With line length XZ (Fig. 5) as radius and point 23 (Fig. 6) as center, cut the arcs drawn from points 19 and 25. Label the new points 20 and 24. Draw lines 19-20 and 24-25.

e) From points 19 and 20 draw lines downward and perpendicular to line 19-20. Measure down $\frac{1}{4}$ in. on both lines and draw line 21-22. From points 24 and 25 draw lines downward and perpendicular to line 24-25. Measure down $\frac{1}{4}$ in. on both lines and draw line 26-27.

Add allowances for seams and joints and mark the patterns.

the science of



SELLING

**13 Ways to Win
a Decision When
the Prospect Says:**



'I'LL THINK IT OVER'

Chances are, this discouraging statement is no more than a hedge by the prospect to postpone committing himself. If you can figure out why he's stalling, you're on the road to a sale. Here are 13 more chances to get his signature on the contract

Use These Articles in Your Sales Training Program

THE SUCCESS AND GROWTH of every industry depends on its ability to create a desire for the products and services it offers. The responsibility for this motivation falls upon the industry's sales force, who must see to it that sales grow not only in volume but also in quality; that is, they must represent an exchange of maximum benefit to the customers for a fair profit to the business. This exchange permits — and also requires — the business to improve its operation constantly to serve future customers better.

To fulfill this obligation, salesmen must be able to recognize the needs of prospective customers quickly, and then produce logical recommendations for meeting these needs. Thus, training new salesmen and improving existing sales forces is

a continuing and vital task of management.

This series of articles presents some new information and some refinements of established sales methods which will be useful in dealer-contractors' sales training programs.

If the sales staff is small list the name of each salesman on the cover of this issue and route the magazine to each before filing.

If the sales staff is large enough to warrant weekly sales meetings, use each article as the basis for a continuing training program.

Wholesalers and manufacturers can assist dealer-contractors and their salesmen by building more formal sales training programs around this series.

ONE OF THE MOST disheartening replies to the salesman's request for the order after building a solid case for his product or service is the prospect's muttered, "I'll think it over." The least that can be said about this statement is that the sale has not been closed; the most, that it hasn't been lost. In most cases the prospect is simply postponing making a decision.

There is seldom a compelling reason for his needing the extra time. His postponement may mean that he hasn't been completely sold in some area. It may signify some hidden misgiving about the proposition. It can even be a smoke screen for some intensely personal reason for not buying.

Try for Decision

Under these circumstances, should a salesman still try for an on-the-spot decision? "Yes," say many salesmen who do it habitually.

Here, culled from experiences in a wide variety of fields, are 13 of the best ways to overcome the prospect's reluctance to reach a decision:



1 Ask "Why?" The salesman's job is to pierce the prospect's armor and force his objections out in the open, where they can be dealt with once and for all.

One very successful salesman says, "Whenever I'm tossed that one, I say, 'Let's think it over together. While I'm here I can give you the benefit of my experience and answer any specific questions you may have.'" Such an invitation, reflecting a genuine desire to help, not only disarms the prospect; it also encourages him to bring forth his real objections and enables the salesman to answer them to the prospect's complete satisfaction and correct any misunderstandings.

Another top salesman has observed that frequently the "I'll-think-it-over" reaction indicates that the prospect himself doesn't know exactly what his true objections are. By asking "Why," the salesman is able to help the prospect resolve his own uncertainties, pin him down to specifics, overcome his doubts. Then he has a better chance of wrapping up the sale.



2 Cite a special inducement for deciding now. "Order today and we can begin installation within 48 hours." Or, "This week only, we're offering a 3 percent discount on all orders." "Special off-season prices expire on the 15th." All are good points to initiate action. Any "bonus" a salesman can truthfully offer a prospect for buying now can often tip the scales in his favor.



3 Prove the prospect can afford to buy. The man who says, "I'll think it over" may not be sure he can afford the purchase. Dramatize the savings, the small investment, the self-liquidating features of the payment plan and the addition to his—or his firm's—net worth. "By installing our air conditioning system in your offices," the salesman might say, "you'll largely eliminate the expensive decrease in employee efficiency during the hot weather this summer." This approach spells dollars and cents to the prospect. A dealer-contractor in Alabama asks the "think-it-over" prospect what he spends each day on cigarettes, then explains, "For less

the science of



than that, you can guarantee yourself comfort throughout the summer heat waves."

4 "You're paying for it anyway." An Illinois sheet metal contractor, when recommending a pre-heater for his ventilating system, says, "The man who doesn't own one is paying for it anyway."

Impressive figures can often be shown a prospect to prove that inefficiency, labor expense or discomfort is costing him much more than the cost of an air conditioning system, for example, and that an immediate order will relieve or elim-

inate this undesirable condition before any more time or money is lost.

"Think it over by all means," answers one heating modernization salesman. "But I'd like to point out that every 'thinking day' is costing you money." (He usually specifies an amount, based on his estimate of the savings in fuel costs, etc. his modernization job will save the prospect.)

5 *Assure him he won't be making a mistake.* When a man wants time for thought, it may be because he is concerned over what his wife, his associates or his partner will say about his purchase. This reason for hesitation can be overcome by doing a little judicious name dropping—by showing the prospect testimonials and giving him other proof of purchases by people whose judgment he respects. If the salesman can show him an order from a neighbor or leading business firm, he's bound to feel more secure about his buying judgment. Everybody likes to back a winner. Proof that a product or service is in demand by the pace-setters in his community often will clinch his decision to buy.

One sales-trained dealer-contract-

tor suggests: "A smart salesman finds out whom the buyer must answer to for his purchase, then volunteers to help the prospect sell the other party on the decision to buy. The salesman can suggest, 'Why don't we visit Mr. (or Mrs.) Jones together? Maybe we can clear up any special questions he (or she) may have.'" In other words, the salesman offers to help the buyer 'spread the responsibility' for his decision to buy.

6 *Congratulate him on his caution.* Try this approach: "This certainly represents an important investment for you, Mr. Jones, and I can understand your wanting to make the wisest possible decision. Selecting the wrong company could easily cost you \$500 more and you still might not be satisfied. The right company can just as easily save you \$1000. I'm sure you agree my company is the right one because we've gone over this proposal together and you've seen how we designed it to meet your specific needs.

By sympathizing with your prospect's position, you subtly ally yourself with him, at the same time creating an opportunity to re-emphasize the benefits your company can provide.



SHOW HIM TESTIMONIALS and photographs from your sales scrapbook of photos and descriptions of similar jobs your firm has done. One major cause for postponing the decision to buy is fear of making a mistake. He'll be reassured by proof that others are satisfied

7 Help him shrug off his guilt complex. Urge him to "Be good to yourself and your family—you and they deserve the benefits we can give you." Many people fancy themselves martyrs who must do everything for their families and very little for themselves. Almost every family man likes to think he's a good provider. Given the least self-justification for buying, a prospect may give you the green light.

8 Ignore it. Sometimes, "I'll think it over" is merely a verbal shrug of the shoulders, not to be taken seriously. In such a case, keep talking. Your very next sentence may close the sale.

9 Create a sense of obligation. With the man who wants to "think it over," the pros and cons of the proposition may be weighing about evenly. The salesman's job is to build up the positives till they far outweigh the negatives. One way is to get a prospect into "psychic debt" to you, either by doing something for him or by getting something that has some value into his hands.

Some favorite approaches: "Let me write up the order and leave it for your signature—you can mail it in when you decide." "In the meantime, let's complete the credit application." "Why not insure this special offer with a small deposit?"

10 Find out if you're talking to the right man. Are you sure this prospect for commercial air conditioning has the authority to buy? Many times, the man who seems to be the right one is merely a "screener" or "buffer" who may hate to confess the limitations on his authority; hence says, "I'll think about it."

There are several ways to find out who signs the orders in a company. Contact non-competitive salesmen who serve the firm. They can tip you off. If you are delicately discreet in your inquiry, the company's receptionist can be a well of information. Various credit rating reports often can supply this information.

When you do find out the right man, however, be sure to contrive



A FOURTEENTH WAY

Show Him a Tax Writeoff

It is frequently possible to prove to a commercial air conditioning prospect that an immediate order may save him cash by enabling him to write off part of the purchase price as depreciation. The later in the year he buys, however, the smaller the percentage he can deduct for that year. It's logical, legitimate and legal.

some way of seeing him without alienating the "buffer" by injuring his pride.

11 "Anything special we can do for you?" Lurking behind this "I'll-think-it-over" stall could be the desire for a concession of some sort. Find out what it is—maybe you can oblige him.

For example, a salesman for a floor cleaning machine company was having a tough time getting his product adopted by a certain bakery. When the owner finally said, "I'd like to think about it," the salesman countered with, "What exactly can we do for you?" It turned out that a competitor had guaranteed the bakery that his company would make maintenance checks on the machine every three months for a year, at no additional charge. When the salesman agreed to match the offer and vol-

unteered to put it in writing, he got the order.

12 Offer guarantees. Everyone likes to feel sure he can expect complete satisfaction from his purchase. Offering written guarantees (excluding conditions over which there is no control) will verify the company's confidence in its ability to install and maintain the system it recommends. Guarantees also show mutual respect of each party's rights and responsibilities.

13 Sell the satisfaction of making a decision. Most people are procrastinators. They hate to make decisions. But help a prospect make one and you accomplish two things: you make him pleased with himself for getting something constructive done and you make him pleased with you for not wasting his time.

10 Packaged Heat Pumps Save Money, Add



When this dealer-contractor showed how he could provide year 'round comfort for \$28,600 — as compared to \$45,000 for a central steam heat-refrigeration unit-water chiller installation — besides saving 415 sq ft of floor space, plans for a new church underwent some alterations

PRESENTED WITH PROOF of impressive savings in cost and space, an architect promptly revised his plans for supplying year 'round comfort in a Fairfax County, Va. church. Ten packaged heat pumps, each rated at 5 tons, have been installed in Congregational Christian Church, instead of the originally-specified single central year 'round air conditioning system comprised of one large capacity refrigeration unit, a steam boiler and the various accessory equipment required for such systems.

Although cost comparisons alone—\$28,600 for the multiple heat pump installation against \$45,000 for the single central system—were enough to convince the architect he should change his specifications, dealer-contractor John Krafft, Arlington, Va. had a reserve clincher: a floor

plan which showed that the heat pump system added 415 sq ft of usable area to the church — space which would have been occupied by the steam boiler, water chillers, and access space in front of the boiler to remove tubes for cleaning.

Release Classroom Space Worth \$5600

With construction costs at a low \$13.50 per sq ft, this saving released \$5600 worth of building space for extra classrooms.

Furthermore, the packaged air conditioning units provide excellent zone control, permitting economical heating or cooling of specific areas: meeting rooms, kitchen



LINEUP of equipment in protected courtyard serves modern church. Nine of 10 indoor sections are arranged in small equipment room

Space in Church Air Conditioning Job



or pastoral offices, when the entire building is not being occupied.

Cost Offset by Operational Savings

Heat pump operating costs are estimated at \$1383 per heating season (at an average 2.3 cents per kilowatt hour, including demand charges). This is about \$200 more than the estimated cost of heating with no. 4 oil. However, Theodore Smith of the building committee points out "I figured with heat pumps we might easily save this \$200 on the wages we would pay for janitorial help. Hiring a man who would know his way around the valves and gages of a steam boiler system would certainly cost

more than hiring someone who needed only to know how to set the thermostats of automatic heat pumps."

Equipment Occupies 285 Sq Ft

The equipment is arranged along the wall of an interior court. Nine of the 10 indoor sections are stacked compactly in a central equipment room, occupying 285 sq ft of floor space and only 24 ft of exterior wall.

Mr. Krafft reports that the 10-unit installation required 1370 man-hours. This job is the forerunner of at least 7 others in Virginia churches.

The editors acknowledge the cooperation of Carrier Corp. in providing information for this article.

R_x for sales problems:

Say NO



To Cut Price Jobs

During a recent visit with Richard W. Friday, Rochester, N. Y., dealer-contractor, the subject of selling quality against a prospect's pre-formed ideas of what he needed, wanted and was willing to pay came up. From his desk Mr. Friday picked up an order that was being routed to the shop and said, "Would you like to hear the story behind this sale?" This is the account we heard. We believe you will enjoy and profit from this example. (Any similarity between actual persons and companies and those referred to in this case history is purely coincidental.)

MR. PARKER's 1933 gravity furnace system had been converted to automatic heating some time ago, but the furnace casing and heat exchanger had finally given out. Mr. Parker decided he needed a replacement furnace, and to get the "best buy" he decided to ask four dealer-contractors for bids.

Salesman Is Intimidated

The first salesman to arrive on the scene was Sam Young from the Maximum Heating Co., who introduced himself and asked to see the installation. He was shown the way by Mrs. Parker who advised him, "I am getting three other figures."

From then on Sam was afraid to make any suggestions that might improve the installation, because he was sure the job would be given to the low bidder. A quick look at the system showed Sam there were too few warm air supply outlets and return openings. Sam reasoned, "If I add the needed work, this will increase the price. After all, this is an old house. These people have lived with this monster for years and probably don't want to spend any more than they have to."

Sam jotted a few figures on the back of an envelope and returned upstairs. Mrs. Parker expressed her hope it wouldn't cost much as they had just bought a new car and the

payments were quite heavy, confirming Salesman Sam's first analysis. Timidly he suggested that the addition of two new warm air registers and three return openings for the second floor would make a better job.

At this moment, Mr. Parker arrived home and Salesman Sam repeated his suggestion. Mr. Parker retorted, "I don't want any more than a new furnace. The bedrooms are plenty warm. In fact, there is too much heat now on the second floor. We have two cold air returns on the first floor. That's all my neighbor has and he's satisfied with his heating system. All I want is just a new furnace."

Sam's Ideals Fall

Salesman Sam mentally sized up the situation: "If I insist on putting in these new registers and return air openings, I'll certainly lose this job. I'd better give the buyer what he wants." After jotting a few more figures on another envelope, Salesman Sam said, "I can install a new furnace for \$550. The Glogo furnace is one of the best and I am sure it will give you all the heat you want."

Mr. Parker hit the ceiling. "What are you trying to do, get rich quick? My neighbor paid only \$495, and he got a darn good furnace."

Salesman Sam, to himself: "If I can get my price below that, I've got a sale." More scribbling on the envelope produced a new figure.

"Well," he announced, "your old ducts are pretty bad, but I could put on a little more asbestos paper and

do that job for \$490. That's even less than you say your neighbor paid."

"That's more like it, but I will have to let you know. I have three other fellows coming, and I want to see what they will bid to do the job."

After an uninspired attempt to get the order, Salesman Sam departed, saying hopefully, "I'll expect to hear from you."

George Goes Lower

That evening, Salesman George from the Square Deal Heating Co. arrived, gave very much the same pitch as salesman Sam, got the same answers, and estimated \$465. He too was told that when a decision was made he would be notified. Mr. Parker chuckled to himself, "Well that's \$25 cheaper; maybe the other guy tomorrow will give me what I want for even less."

If you were Mr. Parker, the prospect, and knew absolutely nothing about heating, what decision would you make? Probably to buy from the lowest bidder, assuming all homes have cold corners and drafty rooms.

Enter Quality Salesman

Next morning, Salesman Joe Brown from the Comfort Company, arrived on the scene. Mrs. Parker greeted him at the door: "I suppose you want to go to the basement."



SKILLFUL PRESENTATION anticipates prospects' objections, sidesteps price discussion and stresses benefits until at least one of the family is converted to salesman's side. From there on, holdout's resistance crumbles

CASE HISTORY

"Yes, but first I would like to measure the rooms so I can figure the heat loss and decide what needs to be done."

"I don't see why that is necessary," Mrs. Parker complained, "All we want is a new furnace and none of the other heating men even mentioned measuring the rooms."

Insists on Thorough Job

Mr. Brown carefully explained to Mrs. Parker that installing a comfort installation involves much more than just setting a furnace in the basement and running a few ducts. He enumerated some of the benefits that can be expected from modern properly installed equipment and explained that even to determine the size furnace needed, he must compute the heat loss of the house.

"Can't you guess at the size, just so it's big enough to keep the living room from being drafty and cold?" Mrs. Parker asked.

After explaining that a larger furnace may not be the answer and could actually produce even less comfortable conditions than the existing unit, Mr. Brown got her reluctant

permission to measure the house. He even asked Mrs. Parker to accompany him through the survey, room by room, as he sketched a simple floor plan. When the plan was complete, Mr. Brown asked about insulation, storm windows, etc. Then he went to the basement where he checked the existing system, basement height, location of the chimney, etc.

He returned upstairs to encounter an increasingly impatient Mrs. Parker, who was still thinking of the cost and not the benefits. "We have had other figures and another heating man is coming Saturday," she said. "So don't make the price too high. Anyway, I don't see why you had to go through all that just to replace the furnace. How much is your price?"

Arranges Second Meeting

Mr. Brown explained that before quoting a price he must take his floor plan back to the office, figure the heat loss and design a system to fit the house. He showed Mrs. Parker a completed survey and plan sheets from another house, explained that every house is different and requires different calculations, and made an appointment to call back that evening with his proposal when she and Mr. Parker would both be home.

That evening when Mr. Parker arrived home his wife told him how much time Mr. Brown spent measuring the house, and repeated some of his explanations to her. Mr. Parker began to wonder why. "Maybe there is more to this heating business than I thought," he mused.

About 7:30 that evening Mr. Brown called with his proposal and asked if the Parkers would mind adjourning to the kitchen for just a few minutes, so he could show them his proposal. On the way, Mr. Brown gently closed the kitchen door so his presentation wouldn't be disturbed by the television program the family had been watching. From his briefcase he



GETTING HOUSEWIFE TO HELP in making floor plan for estimate impresses her with importance of good system design and convinces her of salesman's interest in her family's comfort



ACCUMULATED DATA is recorded in home to be sure nothing is overlooked and prospects will not have to be contacted again until complete estimate is made and sales presentation can start

produced and laid out on the table a floor plan, heat loss sheet, a system design sheet, proposal and contract and finally a manufacturer's brochure on the furnace. Mrs. Parker opened the conversation by telling her husband, "Remember I told you he measured the whole house today." This was the opening Mr. Brown was hoping for. He explained to the Parkers why it was necessary to measure the house, went over the floor plan and heat loss sheet in detail, showed them why the additional warm air outlets and return openings were necessary and described how a proper installation would save fuel in addition to providing more comfort and protecting the family's health.

Salesman Gains an Ally

Mr. Parker, whose primary interest was still "What's it going to cost me?" again protested that all he wanted was to replace the old furnace. But Mrs. Parker's interest was growing. She recalled some of Mr. Brown's earlier comments. She was intrigued with the prospect of a cleaner, more comfortable home where she no longer would have to apologize to her bridge club for the drafts in the living room and the dust on the furniture. Salesman Brown, by then really going after the order,

explained to Mr. Parker about the heat loss and plan sheets, repeated the reasons why additional supply and return openings were necessary (carefully steering away from any mention of price). He stressed the saving in fuel cost, decorating, even in doctor bills for treating colds etc.; and he stimulated Mrs. Parker's interest further by telling her that her furniture and drapes would need cleaning less frequently.

Resistance Begins to Wilt

Mr. Parker was still trying to find out how much it would cost him to have a new furnace connected to his existing ducts. After all, that's what his neighbor did and apparently the neighbor was satisfied. However, Mrs. Parker began to desert the ship, swinging her support to Salesman Brown's side. Suddenly she remembered that "The last time we were there you were steered away from their easy chair because that corner of the room was cold." She turned to Mr. Brown. "Would your system correct that sort of thing?"

Salesman Brown replied, "Mr. Parker, I'll answer your question first — just to replace your furnace would be the most costly thing you could do. The fuel savings alone with the system I have designed for your

home will more than pay the difference in initial cost. And yes, Mrs. Parker, this system will do away with those cold rooms and corners."

Arouses Holdout's Interest

This talk of saving money appealed to Mr. Parker, who felt his annual fuel bills had been much too high; but still a little reluctant, he said, "It sounds like a good job, but I'm sure we wouldn't be able to afford that large a purchase. What is your price?"

"On a 36-month plan your cost would be only \$26.08 per month."

Mr. Parker, not wanting to appear financially insecure, snapped, "Never mind this time payment business. How much for cash?"

"The cash price would be \$785," Salesman Brown replied.

Mr. Parker countered, "I can get a job from the Maximum Heating Co. for \$490, and Y & Q Furnace Co. offered to do it for \$465. They both will guarantee heat. Why should I pay you over \$300 more?"

Salesman Brown repeated his quality story. This time he concentrated on the superiority of his equipment over other makes. But Mr. Parker insisted on a price "just to replace the furnace, never mind the extras."

Salesman Brown had a stock reply: "Our company has been in the heating business for 18 years and by doing only quality work has built an enviable reputation. To quote on any other than a quality installation would endanger this reputation. Mr. Parker, you have already mentioned that Maximum Heating Co. offered to do a job for you at \$490, and that Y & Q Furnace Co. offered the same job for \$465. It would be easy for me to quote you \$10 less than the lowest figure, use inferior equipment and when the job is finished, leave you with a headache. But we don't work that way."

Surprised, Mr. Parker asked, "You mean you won't even quote me a price on just replacing the furnace?" "That's right," said Salesman Brown, "I'd rather lose the job than have a dissatisfied customer." He began to pick up his papers, but Mr. Parker stopped him. "Young man," he

said, "You are the first salesman I've ever met who refused to sell me what I wanted. I'll bet you lose a lot of work that way."

Logic Wraps Up Presentation

"You would be surprised, then, Mr. Parker, at how much work we do get. I find most people are interested more in quality than price and when the reasons for a higher price are explained to them they buy the best because in the long run it's the most economical. I am sure you don't buy the lowest priced model automobile you can get, and I can see you bought your furniture at far from the lowest price. I'm sure if you will consider the facts I have given you, you won't want the cheapest heating system."

After a complete review of his proposal, he asked Mr. Parker if he wanted to clear up any point. Typi-

cally, the prospect asked one or two questions which the salesman promptly answered to his satisfaction. This is good salesmanship, as Mr. Brown knew, because it lets the prospect convince himself he has changed his mind only after careful consideration of all the facts.

Recognizing that the time was right, Salesman Brown asked for the order. He offered his pen, saying, "If you will just okay this proposal, we can start your job early next week."

"Well," said Mr. Parker, "I never expected to pay this much for a furnace, but your logical explanation and your refusal to sell anything but quality convinces me you know what you're talking about. Where do I sign?" To his wife: "Better call up that other guy and tell him not to bother coming over. I'm satisfied that the Comfort Company will do a good job."

Sounds like fiction? Yes, but it happens, much more frequently than one might expect.

Can you do it? Mr. Friday does, and says, "Yes, if you have the guts to say, 'No I won't cut the installation or the price just to get the job.' " He advises, "Learn to sell, not just quote prices. Surely you will lose a few orders, but isn't it much better to sell one job with a net profit of \$100 than three or four at \$25 each?"

"Don't tell yourself 'salesmen are born' and you weren't born that way. Some of the best salesmen in the world were forced into selling, but by hard work they have made outstanding records for themselves and their companies.

"You say you don't have the time? Too busy trying to get the work done and cut costs?"

"Take the time and hang the costs. Any accountant will tell you that in this business you can't figure down to the

last penny anyway, because each job presents different problems. Some mechanics take almost two hours to do jobs that others complete in one hour, for example. Furthermore, you can't make a profit if you don't put one in the proposal. Ask enough to assure a fair profit.

"Learn all you can about the product you sell and the firm which makes it. Study articles published by American Artisan, such as those published in the *Modernization Guide* (March 1958). Study the manuals sold by the National Warm Air Heating and Air Conditioning Association. Learn to use their estimating sheets — they're good sales tools as well as accurate guides for estimating heat loss or gain.

"Prepare your sales talk beforehand. Don't think you can bluff your way through. The customer is not as dumb as you may think. When you hire an attorney you expect

him to know the law and every loophole there is that may give you an advantage. How many hours must an attorney spend preparing a case before appearing in court? Those who don't do a lot of preparing seldom win, and like the heating dealer-contractors who try to make sales without preparing their stories, they barely eke out a living.

"Make up your mind now that you want a fair profit on your work, and that you will say no to the next prospect who wants you to quote on an inferior job. Learn your product and prepare your sales talk. Spend sufficient time with the prospect to be sure that when you do leave he understands that you have his interest at heart. You will be amazed at how often you will walk out with the order. Above all, learn how to and don't be afraid to say "no" to the prospect who asks for a sub-standard, low price installation."

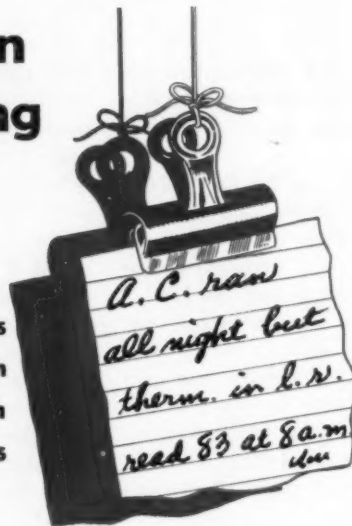
PRACTICAL APPLICATIONS for engineering, installing and servicing residential cooling systems



By **S. W. Reid**
Air Conditioning Engineer
Gilbert Associates, Inc.

Let's Answer an Air Conditioning Service Call

... taking notes for our experience file as we look over the shoulder of a skilled technician who solves a perplexing problem by thorough analysis and systematic checking procedures



THE PUBLIC is occasionally treated to a spectacular eye-witness account of a crime, written by a reporter who rode along in a squad car to answer a seemingly routine police call. Let's tag along with a mythical serviceman for XYZ Air Conditioning Co. to see what we can turn up in the line of information—not so spectacular as a homicide, perhaps, but possibly even more profitable to our businesses

than the reporter's contribution to his newspaper.

As he stops the truck in front of the customer's home, the serviceman pulls out the job ticket and checks the brief note scribbled by his service manager during his phone conversation with the customer: "AC ran all night but therm. in l.r. read 83 at 8 a.m." This is all the clue the serviceman needs. His training and

experience will carry him from here.

We have already jotted down several thoughts as we drove over here. First, when we remarked that the serviceman's clothing was immaculate even though the day was more than half over, he told us clean and neat personal appearance is one of the rules of his shop. All servicemen are required to carry a set of "working clothes" which they put on if

there is any danger of their "traveling clothes" becoming soiled. Before leaving the job they again don the clean uniform and clean up.

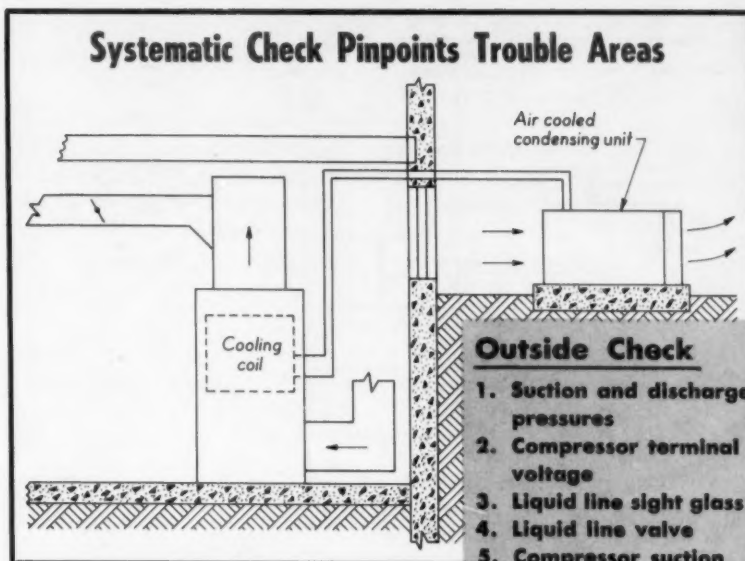
A second point we noted was the appearance of his truck. The outside is clean and in good repair, and the inside is well-arranged, with a place for everything. Pleased that we noticed, he reflects the company's awareness of the free advertising the trucks convey as they move about town or stand in front of customers' homes. "After all," he says, "would a customer expect quality service on his equipment from a company that is careless with its own equipment?"

After a brief talk with the owner, he checks the thermostat setting, notes the room temperature and proceeds to the basement. The year 'round conditioning equipment consists of a cabinet combining a warm air furnace, cooling coil and fan. An air cooled condensing unit outside serves the coil.

Looks Over Entire System

The serviceman tells us he always takes a good look at the entire system before deciding what the trouble may be. We deduce that earlier in his experience he learned, possibly the hard way, that jumping to conclusions doesn't pay and call-backs are costly not only in time but also in reputation.

He enters in his service report the temperature of the air entering and leaving the cooling coil and also notes the fact that all motors were in operation when he arrived. The coil air temperature drop is only 4 deg, instead of the normal 15 to 20 deg.



Next he removes a panel from the cabinet and checks fan rotation, fan belt slack and condition of the filter. These, he explains, are routine checks and any necessary corrections would be made immediately to make sure these components aren't contributing to the trouble. In this case, we find everything as it should be, and the panel is replaced.

Checks Branch Dampers

Now he is ready to check the refrigeration system. Before leaving the basement, however, he glances at the positions of the branch dampers to make sure that air flow has not been unnecessarily restricted. All dampers appear to be properly set, so picking up the needed tools and gages, we head for the back yard.

At the condensing unit the serviceman opens the disconnect switch to

Outside Check

1. Suction and discharge pressures
2. Compressor terminal voltage
3. Liquid line sight glass
4. Liquid line valve
5. Compressor suction and discharge valves

Inside Check

1. Temperature drop over coil
2. Fan rotation
3. Fan belt tension
4. Condition of filter
5. Dampers
6. "Feel" of suction and liquid lines
7. Liquid line temperature drop at strainer
8. Hissing at expansion valve

stop the compressor and the condenser fan. Removing the access panel, he copies data from the unit's nameplate in his service report. This data includes the unit and compressor make and serial numbers, model numbers, horsepower, type of refrigerant, etc. Then he backseats the compressor service valves and attaches the gages. He turns the valves in slightly to open the gage ports. Leaving the panel off, he restarts the unit and observes its operation.

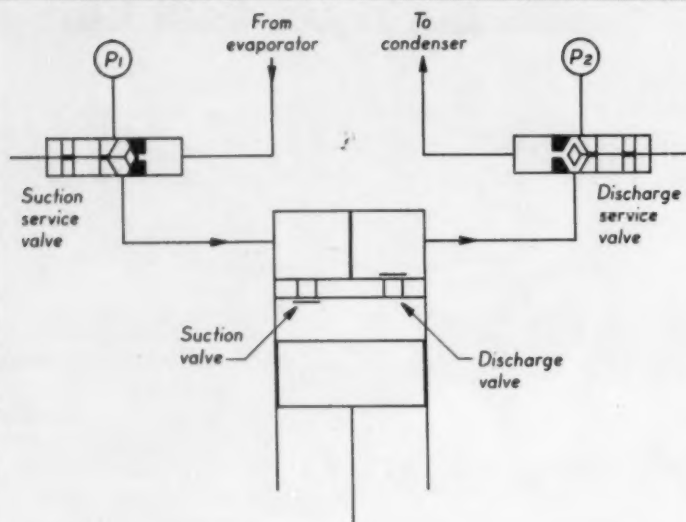
Gages Confirm Suspicion

While we were in the basement, he explains, he had felt the suction and liquid lines, finding the former warmer and the latter cooler to the touch than he knew to be normal,

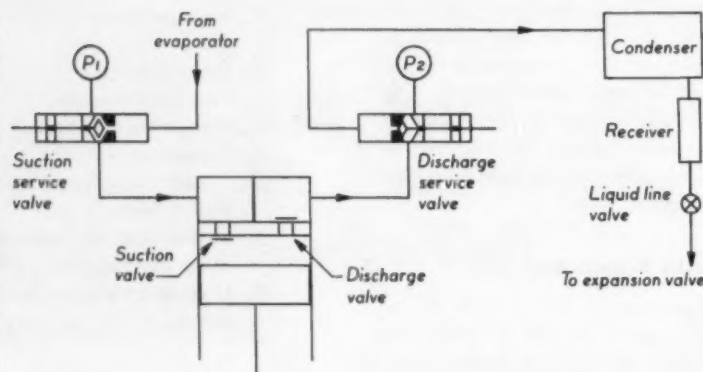
What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons, according to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. ASHRAE defines air conditioning as:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."



1 TO CHECK SUCTION VALVES: close suction service valve while compressor is operating. If valve leaks, P_1 will not indicate a 20 in. vacuum



2 TO CHECK DISCHARGE VALVES: close liquid line valve and operate compressor with both service valves open until P_2 reaches desired test pressure. Stop compressor and immediately close P_2 . If pressure in top of cylinder remains for a reasonable time, discharge valves are tight

and had been able to predict the abnormally high suction pressure and low discharge pressure which the gages now indicate. This, of course, is based on the temperature-pressure relationship which is characteristic of refrigerants.

Recognizing that the pressure gage readings positively indicate that the trouble lies in the refrigeration system, we ask the serviceman for a run-down of possible causes for this abnormal operation. He explains the refrigerant is not being circulated at the proper rate, due perhaps to one

or more of three basic faults in the system: 1) a shortage of refrigerant, 2) an obstruction in the refrigerant lines and 3) an "inefficient compressor." These, he says, are listed in order from most likely to least likely.

Refrigerant Supply Adequate

First he makes the most obvious check for a shortage of refrigerant: inspecting the sight glass, which is part of the condensing unit, located in the line carrying liquid refrigerant from the receiver to the expansion

valve. By removing a cap, he views the refrigerant flow directly. A milky appearance or the presence of many bubbles, he explains, indicates that there is not sufficient refrigerant in the receiver to provide 100 percent liquid flow, which the expansion valve requires for full capacity operation. On the other hand, if the flow appears clear with no indication of vapor bubbles, we could assume the system contains an adequate supply of refrigerant.

"How do you check for a shortage of refrigerant when there is no sight glass?" we ask.

Vapor Causes Hissing

He explains that a liquid-vapor mixture passing through an expansion valve usually creates a very discernable hissing sound not normally present when 100 percent liquid passes through. This condition, along with the discovery of a refrigerant leak by using a halide lamp, would be nearly conclusive evidence that the system needed recharging. (Any leak, of course, would be corrected first.)

He reports that our trouble is not caused by a shortage of refrigerant, since, under the present operation at least, the sight glass is clear. We realize he'll want to check it again when the system is operating more normally, so we leave the cap off and ask, "What next?"

Liquid Line Is Clear

Before he can reply, we see that he has already started to check for some obstruction in the refrigerant lines which might be causing the trouble. A few twists of his valve wrench on the stem of the liquid line valve assures us this line is fully open. Following the liquid line from the condensing unit into the basement and to the coil, we look for kinks or dents in unprotected sections. He also runs his hands along the line, feeling for a temperature drop that might exist where an obstruction would cause the pressure to drop.

Just ahead of the expansion valve

we come across a strainer in the liquid line. The serviceman explains that its purpose is to protect the expansion valve and the distributing orifices from foreign particles which might be carried along with the liquid. He relates several of his past experiences with dirty strainers of this type in systems that had not been carefully constructed to minimize the formation of internal scale. We know a sure sign of a clogged strainer is a temperature drop across it but there is no such drop in this case, and since no other evidence of a clogged liquid line has been found, the serviceman decides the trouble must be in the compressor.

Terminal Voltage Normal

On our way out to the condensing unit he elaborates on the term "inefficient compressor" he mentioned in outlining the three basic causes of the condition we have encountered. He points out that compressor belt slippage, resulting in slower-than-normal compressor speed, might reduce compressor capacity, and he describes the advantage of using the direct driven hermetic compressor on this job. He cautions, however, that even the speed of a direct-driven compressor is subject to question, as it may be less than normal if the motor terminal voltage is lower than normal. Accordingly, he checks the voltage and finds it to be the proper value.

Checks Compressor Valves

"We're in the home stretch now," he says. "Decreased compressor efficiency could be caused by: 1) a broken or defective suction valve, 2) a broken or defective discharge valve or 3) a leaky piston. The third, he feels, usually occurs as a result of wear and would not cause a sudden change in machine capacity as the customer reported. Thus, he eliminates a leaky piston as a possibility.

To check the compressor valves, he turns to the gages connected to the suction and discharge service valves. With both the service valves open and with the compressor in opera-

THIS SPECIAL SERIES

... on subjects of interest to residential air conditioning dealer-contractors is based on the author's wide experience and on constant analysis of the field by American Artisan's editors.

IT ALL BEGAN

... with a complete rundown on fundamentals in 20 articles beginning in August, 1952 American Artisan, describing basic operation of air conditioning equipment.

SPECIFIC PROBLEMS

... treated in the next phase of the series covered maintenance, service, installation and management.

NOW

PRACTICAL APPLICATIONS

... to solve common problems which have been experienced by the author and by dealer-contractors are covered in the current selection of case histories, procedure outlines and specific examples.

tion, he slowly closes the suction service valve, shutting the suction line off from the compressor so the compressor suction port is no longer open to the evaporator but only to the suction gage.

Suction Valve is Culprit

The idea behind the test is now quite apparent. If the suction valves are working properly, they will open as the pistons move down and pull vapor out of the suction gage, then close tightly as the pistons move up so the negative pressure or vacuum

in the suction gage will remain. If the compressor can pull a vacuum of 20 inches or more, the serviceman tells us, the compressor suction valves are working properly. We watch the gage for several minutes of operation and note that the suction gage reads only 6 in. vacuum. We look over the serviceman's shoulder as he prepares a repair tag and writes on it "suction valves leak."

Discharge Valves Okay

For our benefit he completes the compressor check by testing the discharge valves. Starting with the compressor in operation and both suction and discharge service valves open, he closes the liquid line shutoff valve beyond the receiver. This causes the abnormally low discharge pressure to rise. When it reaches some reasonable point, (depending on the refrigerant in the system, which in this case is fluorinated hydrocarbon refrigerant 12, so he uses 100 psig) he stops the compressor and immediately closes the discharge service valve. This in effect bottles up the high pressure in the compressor above the discharge valves. If the discharge valves leak, the discharge pressure gage will show a drop in pressure in a very short time. We look at the discharge gage after the compressor has stood idle for about ten minutes and notice that there has been very little change, confirming our conclusion that the compressor discharge valves are all right.

Customer is Reassured

While we are cleaning up, the owner arrives, and we tell him about the trouble we found. He is naturally concerned about how long his unit will be out of service. The serviceman assures him his firm carries replacement compressors in stock and that one could be installed that evening. He tells us that the need is not that urgent, and the serviceman agrees to install the compressor the next day. The owner is pleased and so are we for having had the opportunity to watch a skilled technician solve a rather complex service problem.

Management's Growth Philosophy

MANAGEMENT KEEPS IN TOUCH

... in the office

CONFERENCE with engineer Ray W. Porter (right) to review a proposal is typical office activity of dealer-contractor George M. Bayles



... and in the shop

EQUALLY AT HOME in the shop, Mr. Bayles inspects dovetail seam he developed to fasten collar to boot fitting. Rack in background contains cut stock of flat blanks for 24 different sizes of fittings used by the firm

STAYING AHEAD of competition is a continuing responsibility of management. The successful dealer-contractor must be well informed at all levels of the overall operation: as familiar with office routines as he is with shop operations and job site procedures. He must be able to rec-

ognize business hazards and develop uses for machines that will cut fabricating and installation costs.

One dealer-contractor who can prove the value of astute management is George M. Bayles, Bayles Brothers, Inc., Seattle.

Evidence of this dealer-contract-

tor's success in meeting competition shows up in his large modern showroom, office and shop, and in the obviously high morale of his employees — all of which contribute to lower operating costs as well as favorable public impression. Work responsibility is delegated to employees, each

Pays Off in Expanding Business

Growth is inevitable for a business operated by an alert management and employees who make it their business to become experts at their jobs



EXPANDED SHOWROOM FEATURES full length windows and spotlights to emphasize the variety of equipment in 800 sq ft display area

of whom takes pride in being the best informed person in the company on his particular job.

Stitcher Saves Time

Fabricating and installation costs, for example, decreased considerably

when Mr. Bayles redesigned some 90 degree angle boots made in the shop to utilize a stitching machine he had on hand. Patterns for different size boots were drawn to allow sufficient overlap to stitch airtight seams quickly. (*Editor's note:* While Mr. Bayles developed this method to ap-

ply his stitching machine, spotwelding techniques could be developed to accomplish the same purpose.)

Dovetail Collars into Boots

To reduce the time required to connect a branch duct to a boot, the



TIGHT SEAM IS STITCHED in sheet metal collar. Many techniques employed by Bayles Brothers were developed by mechanics and management, who are constantly seeking improved methods and cost cutting techniques



NOTCHED SHEET METAL blanks are rolled to form boot collars. Straight edge of sheet is inserted into notched end and fastened with metal staples to form tight joint



TWENTY TO 25 BLANKS are cut at one time in a band saw. Blanks are stored in rack at the right of the band saw



**EMPLOYEES' COFFEE AND LUNCH ROOM
and recreation area helps keep morale
high and interest in company activities
stimulated**

collar is made separately and fitted into the boot with a dovetail seam. The collar is made from 26 ga sheet metal, the same as the boot. To speed up fabrication of the collar, after it is cut out of the flat sheet, one end is notched 1½ in. deep in two places. This depth corresponds to the amount of overlap required to produce a rigid joint. When the flat pattern is rolled to form the collar, the unnotched end is inserted between the two notches and stapled to make an airtight connection. The dovetail seam is made by inserting the collar into a specially designed machine

which turns every other tab to right angles with the collar.

When the collar is inserted into the boot fitting, the tabs are flattened into place with a mandrel.

Blanks for various fittings are trimmed in an electric band saw and stored in a metal rack adjacent to the

machine. The shop produces 24 different sizes of fittings. Twenty to 25 blanks are cut at a time on the saw.

Expand into New Quarters

Recently the firm built a new 9000 sq ft building which houses an 800 sq ft showroom, a 1200 sq ft office area, a 60 × 65 ft shop and a 60 × 50 ft warehouse. A 2000 sq ft area above the office and showroom is utilized as storage space and an employees' recreation room. The recreation room is 11 × 20 ft. The remainder of the area is used for storage of fittings, duct insulation, registers and other small and lightweight stock.

The company continues to grow. Eight salesmen, four office girls and an office manager stay busy and the work schedule stays filled. The firm serves an area within a 25 mile radius of Seattle.

Next month: a special report on

ELECTRIC HOME HEATING

- *Where does it stand now?*
- *Which way is it going?*
- *Why is it sold?*
- *How is it sold?*
- *Beat 'em or join 'em?*

You'll find answers to some of the major questions about this much-discussed subject in a special section of the October American Artisan. Don't miss it!

SELL YOUR SERVICES ALL OVER TOWN



... with the right kind
of truck signs. Here are some tips from the experts
on how to create favorable impressions
for your business with mobile billboards
that will be remembered

NOBODY QUESTIONS THE VALUE of signs and billboards as advertising media. However, such factors as initial and maintenance costs, locations and functions must be weighed carefully against the results, in the form of sales leads, they are likely to produce. They must more than pay for themselves in actual sales. To do so, they must be located in market areas which: 1) are practical to serve, and 2) contain enough potential customers to make them worthwhile. The number of market areas which can be so reached is restricted by cost, zoning laws and other factors; and the results to be expected are extremely difficult to measure.

PUT DECALS ON YOUR PERSONAL CAR

Motorized advertising need not be limited to your service trucks. Placards and decals with your advertising message can be obtained from sign-makers. Most decals and placards are non-injurious to body paint and can be removed. Why not put these signs on your door panels or in your windows and offer them to your employees for their cars? The more people who see your name the more sales leads you'll get.

But your service trucks, which contain a wealth of free "billboard" space, are affected by none of these limitations. Wherever your trucks travel or park they can sell your heating, air conditioning and sheet metal products and services as they perform their primary function of transportation. Waste exposure, laws against signs, etc. need not be considered and the number of homeowners they reach can't be matched by any type of stationary sign.

The amount and type of attention these traveling billboards attract will be proportional to the amount of planning that goes into their design. Two inherent features of this type of display must be considered in the design stage: 1) the sign is usually in motion and must be read and digested quickly, and 2) the amount of space available is restricted.

Experts Give Pointers on Signs

How can you be sure your truck signs will be noticed and your message remembered?

This question was put to a number of executives and artists who specialize in outdoor advertising. Their suggestions have been condensed into the following design check-list for mobile advertising.

1. Become sign conscious. Study the signs on other commercial vehicles. Notice which attract your attention and intrigue you enough to read their messages. Take notes and incorporate the applicable ideas into your own signs. But don't copy others' signs — use them only as starting points.

2. Try for attention. Your sign won't be read unless it first attracts the attention of passers-by. Make the sign unusual — give it some individuality to set it apart from the sea of lettering on other trucks competing for attention.

3. Stress the most important points. Some of the words in your sign are more important than others: the name, address, and telephone number of your business, and the major products and services you offer. Emphasize these words over the incidental messages.

4. Keep the message short. A very brief slogan or message about your business is a good idea, but remember: the truck is usually moving and reading time is limited. An unusual slogan attracts attention, but it will defeat its purpose if it's so long that viewers don't have time to read the company name and identify it with the message.

5. Balance your signs. As in newspaper ads, mobile signs must be in balance. Heavy, unbalanced areas call attention to themselves and cause the reader to miss the sense of the overall composition.

6. Make side panel signs big. The side panels of the truck are probably the largest area available for signs, but side panel signs move in and out of vision in a relatively short time, so the message should be restricted to a prominent presentation of the company name, address and phone number, plus some simple design or illustration which symbolizes the company's business. Advertising messages or slogans should also appear on the sides, but should be given secondary prominence since they will be read only when the truck is not in motion.

7. Use the back panels. Don't overlook the rear panels of your trucks. Here the signs can be read more leisurely by motorists who trail the trucks through ordinary traffic. This is the place for lists of the products and services you offer. Repeat the company name, address and phone number, advertising messages or slogans here, also.

8. Don't forget the front. Your company name inscribed prominently across the front of your service truck will be seen by on-coming traffic and will attract attention to the side panel signs.

9. Use the top, too. Bright signs on the tops of your trucks will attract the eyes of office workers and apartment dwellers who may have need of some of your products.

10. Keep lettering simple. Design your sign for nearsighted people. Lettering should be large and in simple block letters. Use short words if possible, with a minimum of capital letters and plenty of space between letters and words.

11. Combine colors effectively. Color experts have discovered that bright orange is the "loudest" color.

Give Your Signs a Chance . . .

. . . to make the kind of impression you designed them for, by making sure their environment is in keeping with the quality of the signs.

Keep trucks in good repair

Dented fenders, caved-in bodies and faded paint jobs on the trucks themselves are not only poor ads for your business but also provide a ludicrous setting for your signs. A well-cared-for truck is a testimonial to your quality-mindedness.

Train your drivers

Insist that your drivers and servicemen be neatly dressed and clean shaven, obey traffic laws and drive courteously. . . A bearded driver in a dirty uniform behind the wheel of your mobile billboard will give the impression that you know a lot about signs but do sloppy heating, air conditioning and sheet metal work.

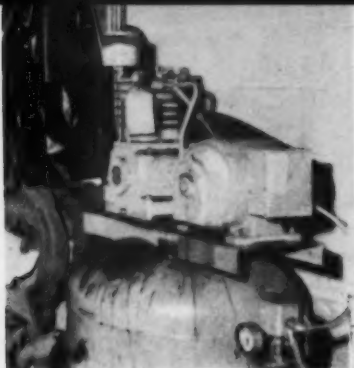
By the same token, no matter how impressive your sign, a truck being wheeled about the streets without regard for traffic laws and common courtesy will give your business nothing but the wrong kind of publicity. There's no surer way to lose a prospect than to have your truck crowd him out at an intersection.

However, while a bright orange truck would certainly stand out in traffic, this color is not necessarily best for signs, where readability is what counts. Readability tests rank color combinations as follows: 1) black lettering on yellow background; 2) green lettering on white; 3) red on white; 4) blue on white. Any of these combinations are very effective.

12. Keep them fresh. Run-down signs suggest a run-down business. Keep them clean and paint them at the first signs of deterioration or fading.

When the sign you've designed checks out on all 12 of the above points you can be pretty sure it will do its job. Now find a reliable sign shop and demand a quality job that reflects your way of doing business. Sign painters are artists who can help you with your problems and make suggestions you may not have considered which will add sales appeal to your sign.

Other factors not directly related to the signs themselves will help increase the effectiveness of your mobile advertising. Some of these tips are listed separately on these pages.



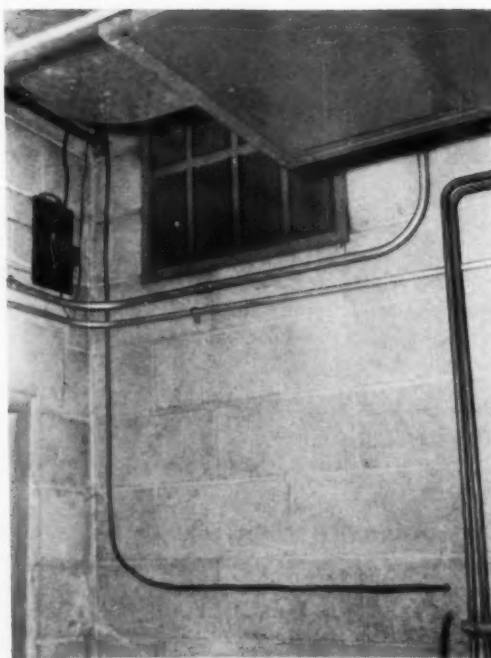
By Joseph Gilin
Gulf Oil Co.

How to Keep Horizontal Furnaces Dependable



DIRT AND SOOT removed from supply plenum through inspection door of furnace used in a filling station accumulate on top of air compressor storage tank and around base of tank on floor

Because of certain application peculiarities in gas stations, supermarkets, warehouses, etc., careful adherence to manufacturers' installation instructions, a regular maintenance program and reasonable care by personnel are essential to achieve the efficiency attainable by these versatile heating systems



STACK OF DIRTY USED TIRES (left) hides a return air intake. Because this practice by service station attendants is so common, many dealer-contractors now install return air intakes high on storage room walls (right) — not the best location for a return air intake but a suitable compromise



OVERFIRE DRAFT IS CHECKED with the aid of a metal plate backed up with soft sheet asbestos and placed over inspection door when draft gage is used. Streaks above inspection door indicate existence of positive pressure within the combustion chamber

MANUFACTURERS' RECOMMENDATIONS for the installation of their heating equipment are aimed at producing the best possible performance records and satisfied customers. Dealer-contractors who don't follow recommended installation procedures often discover that service calls during the guarantee period have eaten away their profit.

Most service calls during the first year can be traced to carelessness of the installing mechanics and failure to perform final inspections before turning equipment over to customers.

Registers Not Adjusted

A recent check of 56 service calls to gasoline filling stations in eastern Michigan showed that in 45 cases the supply registers had not been adjusted after being put into place even though the specifications issued to the heating dealer-contractors called for balancing the air delivery systems.

This condition is often the cause for many kinds of complaints — inadequate heat, high fuel bills, and dirty stations — from filling station operators.

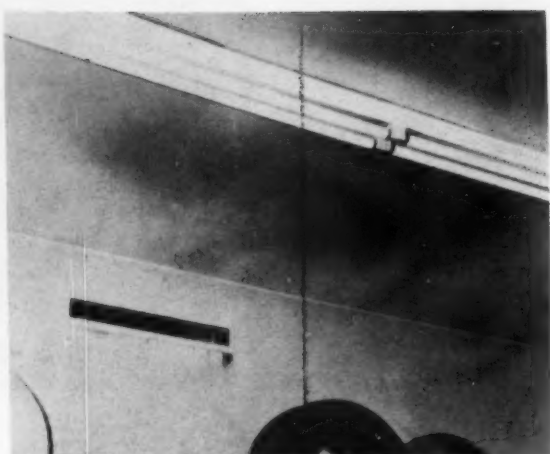
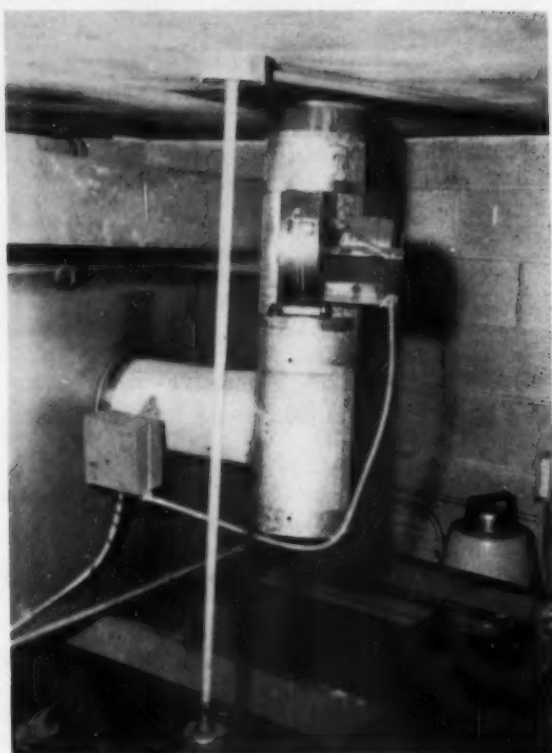
Same Factors Apply

Some of the factors which are typical to heating systems installed in gasoline service stations are also common to installations in supermarkets, shopping centers, factories,

Annual preventive maintenance check-list for oil burner systems

- 1) Start burner, allow it to operate 10 minutes, then take a CO₂ test and record all readings. Stop burner.
- 2) Replace oil filter cartridge and gaskets.
- 3) Check suction and return fuel lines for tightness of fittings.
- 4) Clean and inspect check valve.
- 5) Remove and clean pump strainer; reinstall it with new pump gaskets.
- 6) Remove burner motor and combustion fan, clean fan and inspect drive coupling; reinstall them, making certain coupling is secure to both shafts. Oil motor bearings.
- 7) Remove burner electrode assembly; clean or replace nozzle and screen. Replacement nozzle must have rating, spray angle and type of spray specified by manufacturer.
- 8) Clean electrode conductors and porcelains, replace cracked porcelains. Set electrodes according to specifications. Replace assembly.
- 9) Check transformer by observing spark when shorting across terminals with electrical circuit closed.
- 10) Oil blower motor bearings and blower bearings. Check fan belt for tightness and alignment.
- 11) Install pressure and vacuum gages on fuel pump. Start burner and observe readings. Set the pressure at 100 psig. Total pump vacuum should read at least 3 in. more than running vacuum; if not, pump should be replaced.
- 12) Examine all controls for cleanliness and operation. This includes thermostat, fan-and-limit, and primary controls.
- 13) Check overfire draft with a draft gage. Set draft regulator to maintain -0.04 w.g. minimum overfire draft. Do not leave burner operating with a positive pressure in the combustion chamber.
- 14) Take CO₂ test and compare it with first readings. Make any necessary final adjustments, then set thermostat to normal winter setting. This will stop the burner and leave it in a position to respond when heat is required.

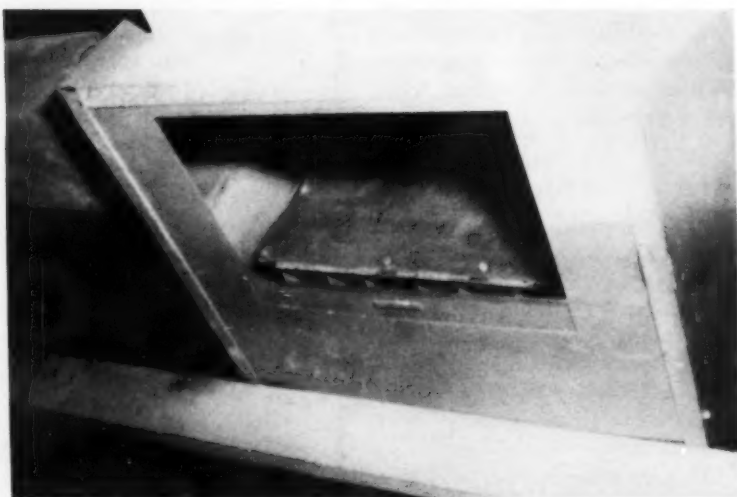
The approximate time required to perform the above check is two hours. The time spent to do this work should pay off in reduced emergency service calls during the heating season.



▲ **STREAKING OF CEILING** and improper heat distribution are results of improper adjustment of register vanes

◀ **PROPERLY-INSTALLED DRAFT INDUCER** meets the draft requirements for installations with short chimneys

COMBUSTION CHAMBER end plate, visible through warm air supply plenum access door, is sealed and bolted to avoid leakage to or from the combustion chamber ▶



warehouses, airplane hangars, and other commercial buildings which are predominantly single-story structures. These installations call for careful attention to balancing the air delivery and adjusting burner operation, because most of them have one common feature — a horizontal furnace in a storage room, as close

to the ceiling as possible to permit maximum use of the room.

Sacrifice Natural Draft

Equipment so located often employs prefabricated chimneys directly above the smoke pipe breeching. Frequently these chimneys are re-

stricted to a height of 5 ft or less, and can contribute little toward creating the natural draft required for good burner operation. Constructing such chimneys high enough to create sufficient draft for good burner operation is not feasible for two reasons: 1) the appearance would be objectionable, and 2) the height re-

quired would be economically impractical. Thus, in most installations such as gasoline filling stations a mechanical draft inducer is employed to develop the draft across the fire required for good combustion.

Keep Furnace Room Clean

Storage rooms in which the horizontal furnaces are located often are used as part of the air distribution systems, serving as the collecting points for return air from adjacent rooms. The storage room is often overlooked at cleanup time, and dirt and dust accumulate in it. Moving through the storage room to the return side of the furnace, the return air picks up the dirt and dust and carries it to the unit, where it quickly clogs the air filters. To obtain sufficient air for heating, the owner or operator of the service station may remove the air filters and forget to put in replacements. Dirt and dust enter the air distribution system and are discharged into the occupied areas, producing streaks at the supply registers and deposits on walls.

Installing and servicing this type equipment is no more difficult than it is for any other type of equipment, but it does require a certain amount of follow-through in installing and adjusting the equipment.

Complain of Odor, Pulsation

Filling station complaints fall generally into five categories: the three previously mentioned (inadequate heat, high fuel bills, dirty stations), plus strong combustion odors and burner pulsation or puffbacks. All five of these problems are easy to correct if the installer is familiar with the causes for these complaints.

Check Overfire Draft

The serviceman should first check the draft over the fire, as this will be a clue to the cause for most complaints. On about 80 percent of the surveyed calls, insufficient overfire draft was found. When this condition is encountered, the serviceman should check to see that the smoke-

pipe and chimney flue passage is unobstructed. If the draft is insufficient, he should check to see if a draft inducer is used. If not, one probably should be installed. However, if a draft inducer is used, it must be checked for proper adjustment to produce the required draft across the fire.

Put Inducer In Smokepipe

A draft inducer should be as close as possible to the furnace and in the smokepipe, not in any lower section of a T-connection which sometimes is used as a chimney cleanout opening.

The draft inducer should be set to provide 0.04 in. w.g. draft across the fire. This reading should be made at the inspection door with a draft gage.

Insert Tube Through Plate

To check the draft across the fire at the inspection door, the serviceman should use a metal plate backed up with a sheet of asbestos paper. This metal plate must have an opening wide enough to insert the draft gage tube. With the inspection door open, the plate is pushed firmly against the edges of the door opening, the draft gage tube is placed in the opening and the draft inducer is set for the required 0.04 in. draft.

Causes Several Complaints

When sufficient draft is lacking over the fire, a number of conditions occur which contribute to customer dissatisfaction. One is high fuel costs because of incomplete combustion. Another is a buildup of air pressure in the combustion chamber to a positive reading. Third, controls operate erratically because of soot accumulation. Fourth, soot and corrosion build up in the smokepipe and chimney, further restricting the flow of combustion gases to the outside.

Leave Heat Exchanger Open

When such conditions exist, another situation often develops that

can be traced back to the installing mechanic's failure to follow the instructions. Furnaces used in the applications described here usually use prefabricated refractory tile for combustion chambers, and one end of the furnace combustion heat exchanger must be left open for the installation and assembly of the combustion chamber through a bottom access door in the furnace. When the prefabricated combustion chamber has been installed, a heavy gage end plate is bolted into place to complete the furnace assembly.

Seal Combustion Chamber

To make a tight fitting between the end plate and the rest of the furnace heat exchanger in this type of installation, asbestos rope is usually employed to form a seal between the end plate and the combustion chamber. This rope should be entwined around the studs which hold the heavy gage metal end plate in place, to prevent air from leaking into the combustion chamber when the pressure created by the blower is greater than the design negative pressure in the combustion chamber. When insufficient draft is produced, a positive pressure builds up in the combustion chamber. When this pressure becomes greater than that developed by the furnace blower, smoke and combustion gases containing their soot and partially-burned particles of fuel leak into the air system and are distributed to the occupied zones where they streak the walls and ceilings. Dirty supply air of this type includes both dirt and grease which produce the complaints of dirty interiors and odors in the area.

Use Maintenance Programs

Some companies which operate service stations have formulated preventive maintenance programs to insure efficient operation and to reduce unnecessary service calls. At least one of these preventive maintenance programs include the points enumerated in the box on the second page of this article.

Warm Air Plusses Win Church Heating Job

**Four furnaces with multi-jet burners
controlled by outside temperature supply more
comfort for less money than the wet heat system
considered by cost-conscious building committee
until the members heard the warm air story**



FEATURES OF COMMERCIAL TYPE BASEBOARD AIR DIFFUSERS which supply air to the nave are explained to members of building committee by Howard Kummel (kneeling)

RAISING MONEY for a new church is always a headache for building committees and they are always willing to listen to proposals that will cut the cost of new buildings without sacrificing any of their demands. Recently, when the decision to build an 800 seat church in New Castle, Pa. was announced, Howard Kimmel, Kimmel Heating and Air Conditioning Co., set about designing a forced warm air heating system for it. The system he proposed to the committee not only would cost \$4500 less than the \$14,500 wet heat system which had been bid, but also offered several outstanding advantages over the wet heat system. The committee's collective eyebrows lifted considerably when Mr. Kimmel showed them his system would:

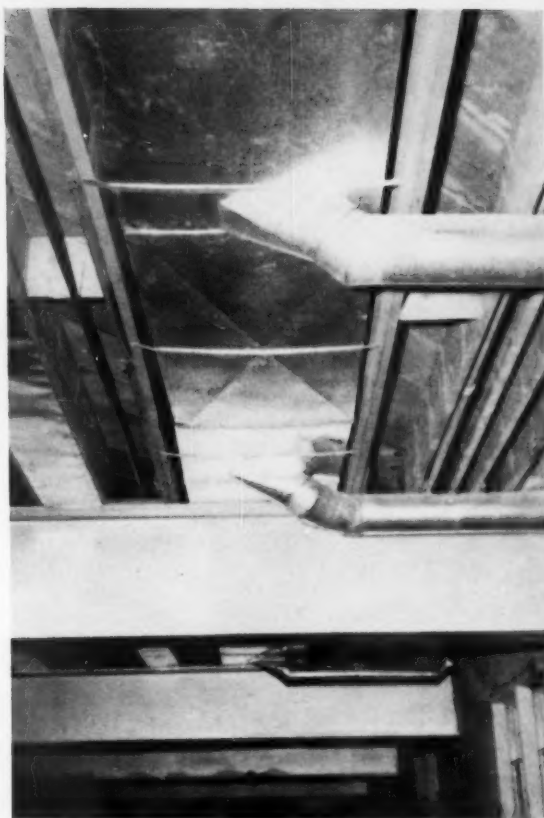
- 1) Be more economical to operate.
- 2) Heat the building faster.
- 3) Make it easier to control temperatures (no overheating).
- 4) Accommodate add-on summer air conditioning without extensive alterations.

Air Conditioning Gets Boost

Mr. Kimmel's recommendation to plan ahead for summer air conditioning received some welcome sup-

ENLARGED JOIST SPACE accommodates duct run above steel I-beams. Joists were doubled on each side of the duct to restore needed floor support. (Future plans call for a dropped ceiling in the basement) ➡

STANDARD SIZE REGISTERS WERE INSTALLED in bottom of duct in joist space closest to building wall. Registers, located over windows, provide all supply air for basement ➡



A visiting minister helped clinch the sale . . .

. . . when he told the building committee: "Air conditioning more than pays for itself. It shows up in the collection plate during summer months when attendance usually falls off." — another "plus" for warm air heating, and a testimonial worth remembering in your next church heating proposal

port from a visiting minister from another section of the state, who told the building committee, "Air conditioning more than pays for itself. It shows up in the collection plate during summer months when attendance usually falls off." Presented with these facts, the committee had no trouble choosing the type of heating system for the new church.

Use Multi-Jet Burners

Kimmel Heating elected to use four gas-fired furnaces, each serving a

separate portion of the church. The firm selected one 75,000 Btuh input unit to serve the pastor's study and the church secretary's room; one 190,000 Btuh input furnace to handle the basement; and two 250,000 Btuh input units to heat the nave and the church vestibule. Multi-jet burners in each unit are controlled by outdoor temperature changes which activate the low jet, high jet or both jets, as necessary.

Commercial type baseboard diffusers supply heated air to the nave. Residential baseboard diffusers are

used in the pastor's study and church secretary's room. The vestibule gets its heated air through 7 × 12 in. baseboard diffusers, and 6 × 10 in. registers serve the basement temporarily.

Basement Will Be Altered

This part of the heating system will be altered later when a suspended ceiling is installed to cover the wooden joists and thick I-beams.

The architects' specifications which called for spacing the wooden

AIR IS SUPPLIED to vestibule through baseboard diffusers which blanket each doorway with enough heated air to offset maximum loads introduced through doors during traffic peaks



HIGH SIDEWALL openings remove return air from both the nave and the vestibule. Return openings were sized to handle a volume equal to the amount of air supplied

floor joists on 12 in. centers complicated the duct system and had to be altered on each side of the church to provide space for a 30 × 10 in. duct. To assure sufficient floor support, the joists were doubled on both sides of the duct.

Over 7000 lb of galvanized sheet metal was used to construct the supply and return duct systems.

Specify Larger Blower

To overcome static resistance through the longest (156 ft) trunk line, the standard size blower motor was replaced by the next larger size.

Air from the supply ducts flows to perimeter diffusers through round branch ducts which take off from the

bottoms of the trunk lines and cross under the floor joists.

Registers Put in Duct

Supply ducts to the basement run in the 12 in. joist space nearest the wall. Registers are in the bottom of the duct, directly over the points of greatest heat loss. The air is discharged downward in a fan pattern to blanket the entire basement wall.

Make Up Loss Through Doors

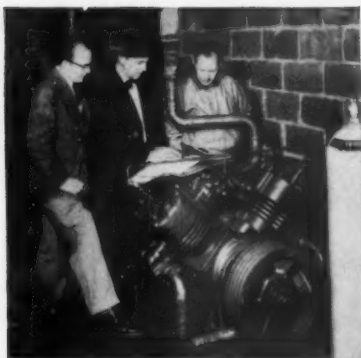
The vestibule is supplied through diffusers beside each door. The air volume discharged through these diffusers is sufficient to offset the heat lost when traffic entering or leaving

the church, during Sunday services, etc., is at its peak.

Match Supply Air Volume

Return air from the vestibule is taken through openings in the partition between the vestibule and the nave. Capacity of these openings is equal to the supply air volume.

The nave has its return openings in the same partition. Air is drawn from the back portion of nave. Return air from the rest of the church enters grilles located high on the partition between the nave and the minister's study and secretary's office at the front of the church. These returns are sized to handle air quantities equal to those supplied the nave.



Baltimore, Maryland, service engineer reports: "'Freon' refrigerants help us do a better servicing job. It's dry and safe—the most dependable refrigerant on the market today."



East Rockaway, New York, contractor reports: "Nothing works like 'Freon'. I'm convinced it's the best refrigerant on the market—safe and dependable for any job."



Louisville, Kentucky, service man reports: "'Freon' is the world's best refrigerant for our money. It's pure, dry and safe—never causes one bit of worry or trouble."



Atlanta, Georgia, contractor reports: "We've never had a bad batch of 'Freon' in the 25 years we've used it. It's never caused us trouble on the job or—after years of service—in a system."



Tucson, Arizona, service man reports: "'Freon' refrigerants help us do the best job possible. They're reliable and safe. Since 'Freon' came out, we've never used anything else."



St. Louis, Missouri, service man reports: "We've never had a moisture or corrosion problem in equipment charged with 'Freon.' It's absolutely dependable—always pure and dry."

All over the country, users are talking about the advantages of Freon* refrigerants



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

East, west, north or south—contractors and service men appreciate the extra quality of "Freon" refrigerants that costs them nothing extra.

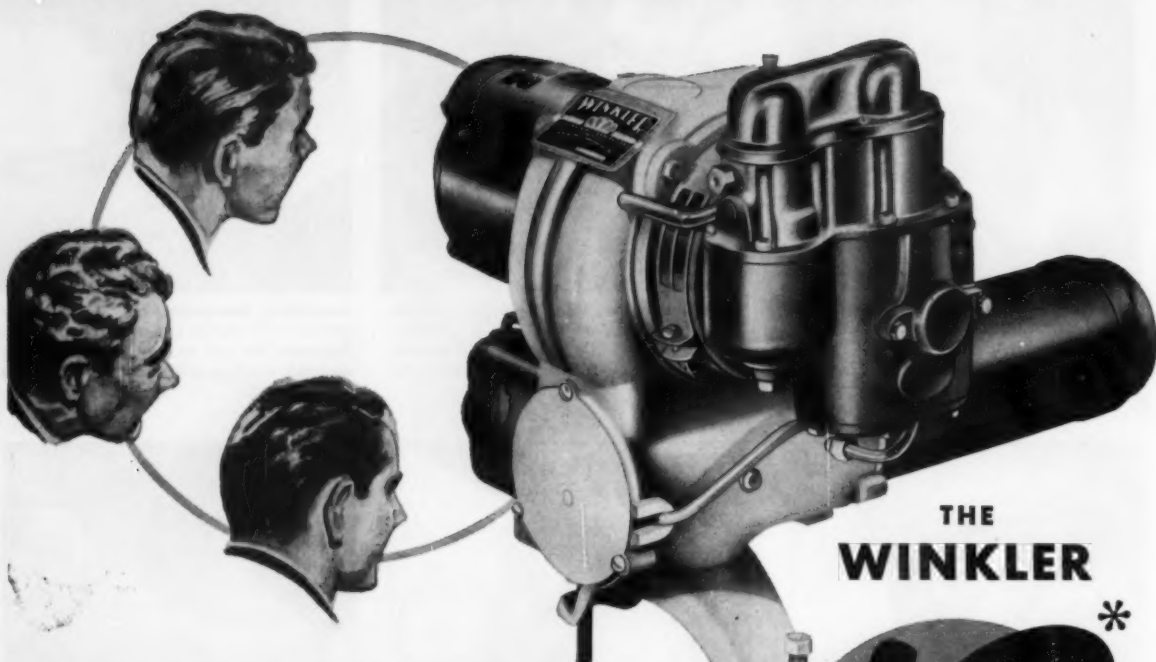
"Freon" is today's premium-quality refrigerant . . . stable, pure, dry—nonflammable, nonexplosive, nontoxic. It's time-tested—in use over 27 years and made only by Du Pont—backed by years of technical and manufacturing leadership.

Specify "Freon" refrigerants for every refrigerant need. Your Du Pont wholesaler has it—now capped in gold and factory-sealed to guard its purity till you're ready to use it.

FREON® *premium quality*
REFRIGERANTS

*Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.

SELL THE LOW PRESSURE WAY



Sell the oil burner with
a real sales story... **50%**
proved to save up to

More and more dealers are finding that "low pressure" selling means business—more profitable business—when they sell the amazing Winkler LP Low Pressure Oil Burner!

Winkler is the revolutionary oil burner that gives you a better sales story because it gives you something to sell besides price. This oil burner has a remarkable history of fuel economy—reported in many cases to be as high as 50%!

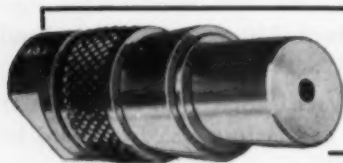
The Winkler LP ends fuel waste because its non-clog nozzle and positive acting fuel meter permit exact sizing of the burner to match the heat requirements of the building. That means operating periods are longer and more efficient—heat waste up the chimney is reduced to a minimum.

Yes, the Winkler LP costs more—but its higher cost is quickly repaid by its remarkable economy. You earn a decent profit—and keep it intact because costly call-backs won't eat it up.

Write today for full information on how to obtain a Direct Factory Franchise for the Stewart-Warner-Winkler complete line of quality heating and cooling equipment.

THE
WINKLER

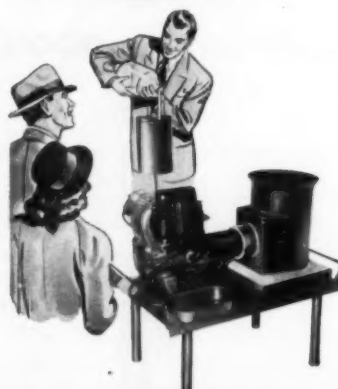
LP
*
LOW PRESSURE
**OIL
BURNER**



**CLOG PROOF NOZZLE
GUARANTEED 10 YEARS**

Won't clog with dirt particles
or change capacity with vary-
ing oil viscosity.

The Winkler LP
Demonstration
Unit enables you to
prove—right in your
own showroom—the
amazing efficiency
of this burner!



Symbol of
SW
Excellence

STEWART-WARNER

HEATING AND AIR CONDITIONING DIVISION

Dept. A-99, Lebanon, Indiana



Slammin' Sam Snead fails to flake Inland TI-CO®

One of golf's greatest players, Slammin' Sam earned his name and fame with a driving power that has seldom been equalled. His swing is deceptively easy—yet it drives the ball with astounding force and speed. At Boca Raton, Sam drove ball after ball into an Inland TI-CO galvanized sheet. Each impact was terrific. Yet, though the TI-CO sheet was battered and dented, *there was no trace of flaking of the zinc coating whatsoever!*

Any Sheet Metal Man who has used TI-CO on a job

could have told Sam . . . "You just *can't* flake TI-CO!" You can Pittsburgh lock-seam it, crimp it, hammer it, give it the most complicated forming in the book—and TI-CO won't crack, peel or flake. That's why so many Sheet Metal Men specify INLAND TI-CO galvanized sheet—*every time!*

Ask your Steel Service Center for the TI-CO Brand . . . the galvanized sheet that's tailor-made for sheet metal work.

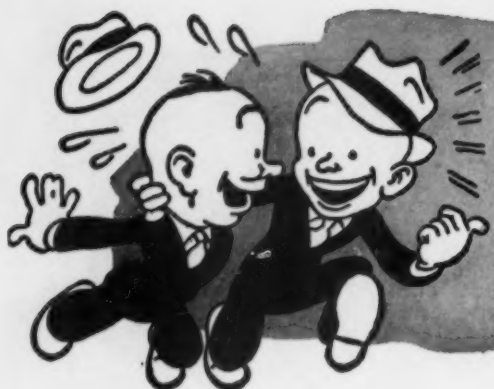


Sam couldn't believe it either 'til he examined the TI-CO sheet for himself.
Not a trace of flaking!



INLAND STEEL COMPANY

30 West Monroe Street • Chicago 3, Illinois



**Idea Exchange
for
Dealers, Contractors**

Portable Rack Protects Patterns

ARE YOU HAVING TROUBLE storing large sheet metal patterns? American Sheet Metal Works, Portland, Ore., has worked out an answer to this problem in a 10 ft long portable rack with six vertical sliding plywood panels.

The rack frame, fabricated of $1 \times 1 \times \frac{1}{8}$ in. welded angle iron, is 60 in. wide at the base, 36 in. wide at the top and 8 ft high.

Panels Roll on I-Beams

Each end of the rack is fastened at the top to seven 4 in. I-beams. The flat bottom surface of each I-beam serves as a guide for four rollers fastened to the top of each vertical plywood panel. One roller is fastened about 1 ft from each end, and the other two are 32 in. apart. The panels are $\frac{1}{2}$ in. thick.

The bottoms of the vertical panels are fitted into 2 in. channel iron guides which prevent the panels from swinging from side to side and serve as the lower longitudinal frame supports.

Channels Strengthen Panels

To strengthen the tops of the plywood panels and prevent wear at the bottom, 18 ga metal channels are



PATTERN RACK with six sliding panels protects and stores frequently used sheet metal patterns

bolted to the upper and lower edges of each panel. The channels were made in the company's power brake and slipped over the edges before the $\frac{1}{2}$ in. panels were set in place.

The patterns hang from wire hooks on the panels. The clearance between panels prevents damage to the patterns from overloading the panels.



PANELS ARE ROLLED out for easy access to patterns stored in compact, portable pattern rack

This clearance also permits easy movement of the panels.

Weight of the patterns and rack counterbalances that of any single panel pulled out to obtain a pattern. The shape of the pattern rack prevents it from tipping to either side as it is moved around the shop on large casters.



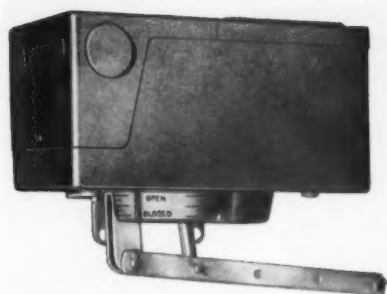
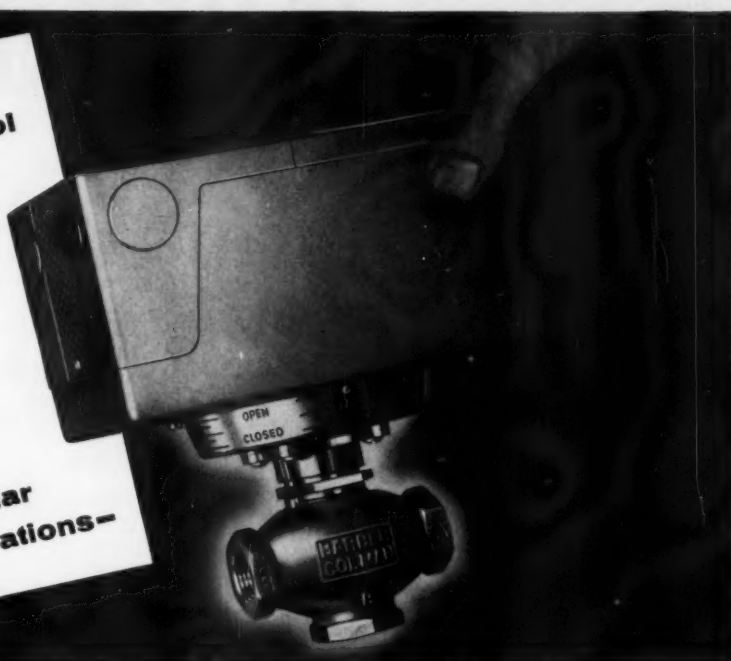
NEW!

A Transistorized Electronic Motor Operator

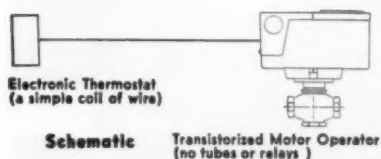
For proportional control applications—

- Individual room control
- Fan coil units
- Reheat coils
- Multizone dampers
- Double-duct mixing boxes
- Induction units

and other similar applications—



— with lever for air damper control



Transistors eliminate tubes and relays giving you the benefits of electronic control at no extra cost

Now for the first time, electronic system control is available at a cost comparable with "standard commercial equipment."

The transistor operator is an electronically controlled device containing a transistorized amplifier and an operating mechanism designed for proportional operation of a valve or damper.

Virtually self-contained, the simple attachment of a two-wire sensing element to the operator forms a system of electronic control (see schematic).

Check these "plus features":

- Simplified, compact unit through the use of transistors.
- Long, trouble-free performance and low maintenance through the elimination of tubes and relays. All moving parts operate submerged in oil.
- Simplifies installation because of compactness and self-contained design.
- Spring return action provides fail-safe performance. Operator returns to "off" position in case of power failure.
- Operator can be easily converted from direct to reverse acting.

Call your Barber-Colman representative or write today for brochure F8991.

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DO IT RIGHT, THE FIRST TIME, WITH **METALBESTOS**

GALVANIZED STEEL OUTER WALL

Maximum strength and permanence.

"ROTA-LOCK" COUPLERS

Save valuable installation time.

Gas tight.

Strong and fool-proof.

Can be easily disassembled.

ALUMINUM INNER WALL

Keeps flue gases hot.

Exhausts combustion gases quickly,
without condensation.

Resists corrosion and assures long-life.

SAFETY SEAL

Identifies your system as
correct and safe.

"SAFETY SYSTEM" GAS VENT TABLES

Assure correct gas vent design.

Saves you installation time.

Write Dept. B-9.

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• Brockville, Ontario, Canada



METALBESTOS DIVISION

WILLIAM WALLACE COMPANY • BELMONT, CALIF.

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VALUE LINE*
AIR CONDITIONING FURNACES
SELL FASTER...



This Quality Heat Exchanger Is One Reason

Modern, die-pressed, streamlined updraft heating section welded into one piece. Low temperature - no hot spots - 635° F. maximum. Large surface for heat transfer gives high economy. Upflow design, with no pockets for condensation or residual acid accumulation to shorten element life. Full floating element minimizes expansion-contraction noise.

Simple removal if necessary. Get acquainted with air conditioning's **VALUE LINE**. Write for catalog, prices and distributor opportunities.

**Top quality warm air furnaces, evaporators and condensing units for all year residential and commercial air conditioning installations.*

Fraser-Johnston

1900-17th Street • San Francisco, California

Keep Track of Customers' Stored Equipment

If you lose or damage property left in your care by the purchaser, you must prove conclusively you weren't negligent . . . and that's hard to prove

AFTER PURCHASING and paying for an air conditioning unit a customer in a southern state asked the dealer-contractor to postpone delivery until his new house was completed.

Construction of the dwelling was delayed considerably and the buyer did not ask for delivery of the equipment for three years. When he was ready for the installation, he inquired about his equipment.

No one knew anything about it.

The customer selected some other material and equipment, the price of which amounted to approximately the same as he had paid for the air conditioning unit. This, he stated, was to be charged against the amount he had paid for the missing unit.

The dealer-contractor sued for the price of the products the customer chose. The buyer sought to prove that this amount was offset by the money he had previously paid for the unit.

In a case a few months earlier, the same court had asserted that when equipment is damaged or lost by one in whose possession and care it had been left, that person is liable for the loss unless he can show that the loss did not occur through his failure to exercise the proper care, but was caused by factors beyond his control, such as fire, theft or some unavoidable accident.

Must Safeguard Property

When a dealer-contractor has the custody and care of property left with him, the law does not make him insure its safe keeping. It does, how-

ever, in the case of damage or loss, charge him with its value unless he shows he safeguarded the property with as much care as he would his own.

In his defense the dealer-contractor argued that he could not be held liable in this action for the disappearance or loss of the unit as there was no evidence of negligence on his part.

No Evidence of Disposition

"There is no evidence whatsoever concerning the disposition of the unit," said the court in reference to this contention, "because the employees have absolutely no knowledge of . . . whether it was stolen, sold by mistake to another customer, deteriorated and thrown away or otherwise lost.

"This argument overlooks the legal principle that the dealer has a legal duty to return the article left with him in the same condition as received. When he fails to return property thus left, he is liable to its owner for the value of the property unless the property was lost or destroyed without fault or negligence on his part."

Ignorance No Excuse

The court commented that the seller couldn't absolve himself from blame by simply stating that he didn't know what happened to the unit. "This would put a premium on ignorance," the court observed, "and one to whom property was thus entrusted, who is unable or unwilling to describe

the circumstances surrounding the loss of the article, would be in a better position than one who honestly testified to circumstances from which the court might infer the neglect of the seller."

The circumstances which validate such excuses for loss of property were defined by a western state court:

"One is excused from his agreement to return the property in good condition if the property perishes or is destroyed without his fault.

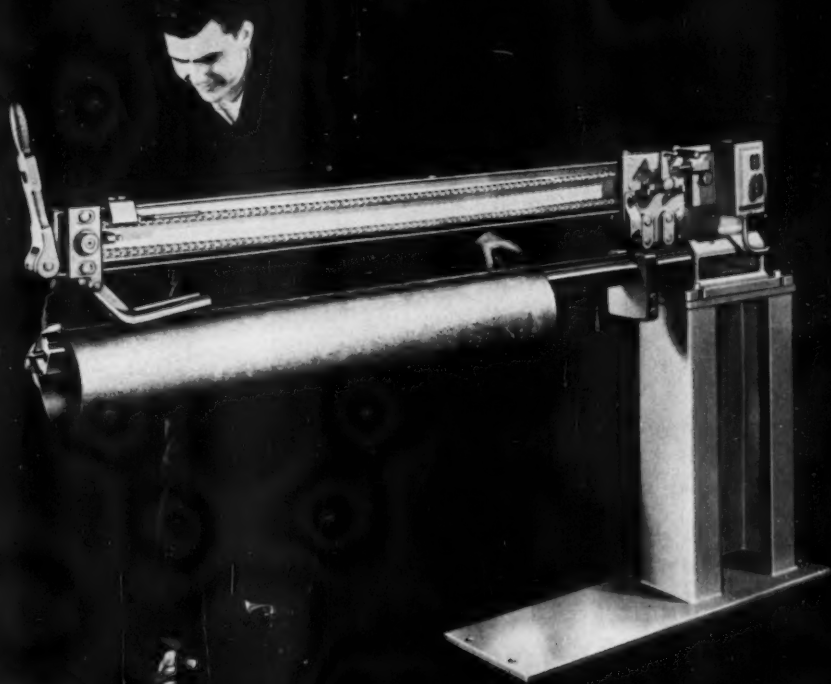
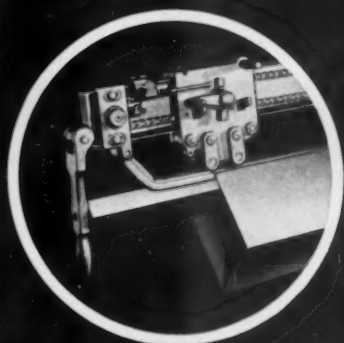
Intent Is Implied

"There are different reasons in these cases but they all resolve themselves into the one, that under the circumstances the parties must have intended that the dealer should be so excused. Thus, it is said that as the contract is to return a particular, specific thing, the parties must from the beginning have known that it could not be fulfilled unless, when the time arrived for such fulfillment, the thing continued to exist; and when entering into the contract, must have contemplated such continued existence as the foundation of what was to be done.

"Therefore, such a contract is . . . subject to an implied condition that the parties shall be excused in case before the breach, the contract becomes impossible from the perishing of the thing without the default of the dealer-contractor."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]

built for speed and operating ease



NIAGARA **UNIVERSAL** **POWER GROOVER**

FOR CLOSING SINGLE AND PITTSBURGH LOCK SEAMS

Up-to-the-minute in design, the Niagara Model 48-U Universal Power Grooving Machine is a fast, smooth-operating producer. Its multi-purpose horn (furnished as standard equipment) is easily rotated and locked in any one of several positions for closing single lock seams on inside or outside of square and round work or Pittsburgh lock seams on square work.

Driven by a direct-connected gearhead motor, the machine requires less horsepower — hence, *lower operating cost, no belts, no space consuming guards!* Convenient controls speed production. Not only can more jobs be done in less time with less effort — but consistently accurate work is assured.

Of rugged fabricated steel construction, this versatile groover features the lowest outline and most compact, space-saving design obtainable. Working length is 48". Single lock seaming capacity is 20 gage mild steel. Pittsburgh lock seaming capacity is 18 gage mild steel. In every detail, it's designed to save time, work, space and money.

SEE WHAT THIS MACHINE CAN DO FOR YOU

by writing for new, illustrated Bulletin 76 which also describes other Niagara power and hand grooving machines.



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Whatever you're looking for in filter selling features—the E Z Kleen Air Filter has it! ODOR REMOVAL?...an E Z Kleen first—since 1956. GERMICIDAL?...E Z Kleen filters have had it since 1956. DUST AND POLLEN REMOVAL?...the best, because of unique baffle design. PROFIT?...you're protected from cut-rate operators. And, there's more. Check the list below...compare...decide for yourself. You'll do better with E Z Kleen Air Filters—and you get extra profits through the sale of ...

RP® SUPER filter coat

AIR FILTER ADHESIVE

—now in a choice of either the Handi-Koter (with self-contained, finger-operated sprayer) or Pressure Koter (the pressurized sprayer).



Check ALL THESE "BETTER FOR YOU" FEATURES AND Compare WITH ANY OTHER FILTER MADE!

HIGH EFFICIENCY

by test, stops more dust, dirt, pollen.

ODOR REMOVAL

traps and holds annoying household odors.

GERMICIDAL

Super Filter Coat contains two bacteria and fungi destroying agents,

hexachlorophene and sodium propionate.

PROFIT

attractive price structure, on both filter and adhesive.

NATIONALLY ADVERTISED

a leader in pre-selling in national consumer advertising.

EASY-TO-CLEAN

water soluble Filter Coat has built-in detergent to make washing simple.

ALUMINUM

the first popular priced all-metal filter.

LOW RESISTANCE

and slow build-up reduces "no heat" complaints.

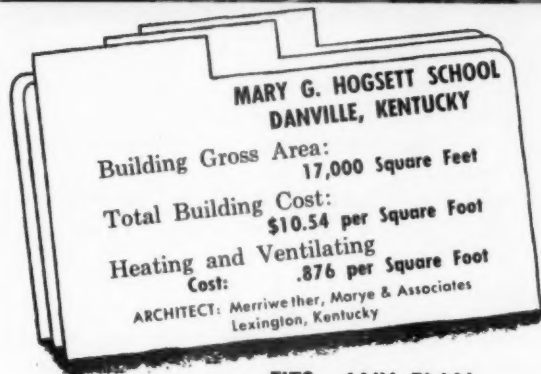
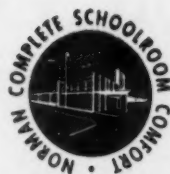
Products of Research



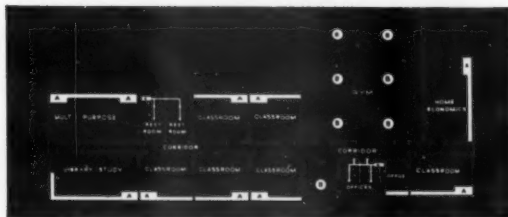
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RESEARCH PRODUCTS Corporation
Dept. 221, Madison 1, Wisconsin

Norman Classroom-Packaged System HEATS AND VENTILATES with TRIPLE Economy



FITS ANY PLAN



Versatile Norman Schoolroom Heating and Ventilating Systems answer the needs of classrooms large or small. 85,000 or 100,000 BTU/hr inputs are available. Util-i-Duct Bookshelf Sections add work surface and storage space; then Wall-i-Duct Sections save room space.

Norman®
PRODUCTS COMPANY



ECONOMY OF INSTALLATION

Pre-wired, partially assembled Norman Heating and Ventilating Systems are quickly installed room by room. In new schools, like the Mary G. Hogsett school, Norman Systems eliminate expensive boiler rooms, chimneys and tunnels. The \$0.876 figure is typical of the low installation costs being realized across the nation. Norman economy grows with the school . . . individual classroom systems are added as required without costly revamping of central system.

ECONOMY OF OPERATION

Norman Schoolroom Heating and Ventilating System:

- Maintains uniform temperature without wasting fuel
- Supplies heat only when needed . . . ventilates automatically
- Each classroom's comfort needs are answered accurately, independently of other rooms.

ECONOMY OF MAINTENANCE

Long trouble-free service is assured by sturdy construction, finest materials and latest A.G.A. approved controls — standard to the industry.

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We want to learn more about Norman Products for School Comfort. Please send complete information to:

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See Sweet's Arch. File 30h/No, American Sch. and Univ. Annual C-1/No

WHAT THE ASSOCIATIONS ARE DOING



SALES AND TECHNICAL PORTFOLIOS on warm air electric heating systems are presented to Frank Kramer, president of the Sheet Metal Contractors' Association of Wisconsin (center) and to Robert S. Schmieder, executive secretary of the association, by Perry Jacobson (left)

If Prospect Wants Electric Heat

Sell Him On Advantages of Air Distribution System

... Wisconsin dealer-contractors told at Eau Claire district meeting

Eau Claire, Wis.—“Many of the electric house heating installations are being sold on quality features—not on low original installation cost,” said Perry Jacobson, district sales manager, Majestic Co., as he opened his address to dealer-contractors attending the Eau Claire district meeting of the Sheet Metal Contractors' Association of Wisconsin. Many of the features claimed for electric resistance heating are equally adaptable to the air distribution system of heating.

Who Are Best Prospects?

“Prospects who have been sold on installing electric heat in one form or another in their homes make the best prospects for quality heating systems,” Mr. Jacobson said. “These people feel they are making a purchase that includes the most modern and complete system available. Therefore they are willing to listen to sales presentations explaining how the standard heating system can be expanded to include electronic air cleaners, electric sterilizing lamps and electrically operated humidifiers.”

Mr. Jacobson indicated he believes it is better to sell electricity as a fuel rather than as a method of heating and to point out the benefits that prospects will enjoy by using central systems.

Tight House Poses Problem

He also mentioned that one of the major problems developing out of electric resistance heating by radiant baseboards or wall units is the problem of excess humidity in tightly insulated houses that have no mechani-

cal ventilation systems. He pointed out that some retailers of electric resistance heating units recommend that small ventilating fans be located in bathrooms, kitchens and laundry rooms so that they may discharge the air into the attic space, contending that the moisture entering the attic space will be eventually carried to the outside by natural ventilation of the attic. He said that this is not true because such installations fail to provide adequately heated outside air to replace the air

(Continued on page 108)



ELECTRICAL RESISTANCE UNITS adaptable to baseboard diffusers were described by James W. Miner (left) and Robert C. Matzen



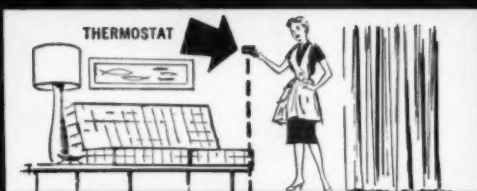
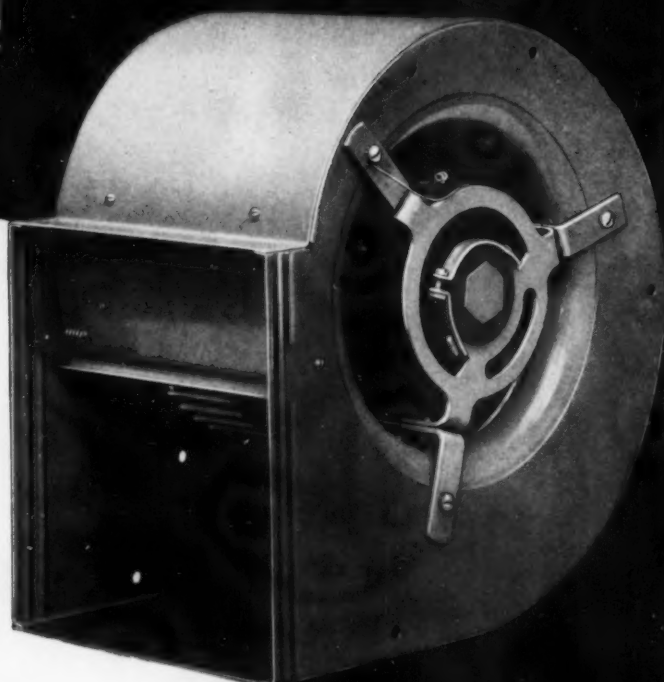
SOLID, MAN, SOLID! Strum a LIMA REGISTER and you'll hear no tinny sound! What you hear is solid rigidity —the sound of all-welded construction that makes your cash register ring! Yes, you and the Lima line will make sweet music together on heating-cooling jobs. Send for the latest Lima catalog of Registers, Diffusers and Grilles.

PUT **LIMA** QUALITY IN YOUR INSTALLATIONS • **LIMA REGISTER CO., LIMA, OHIO**

Now,
MORRISON
 DIRECT DRIVE
BLOWERS

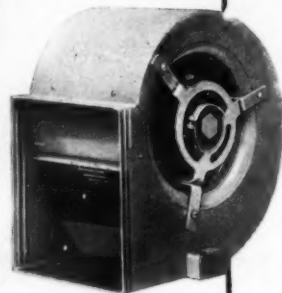
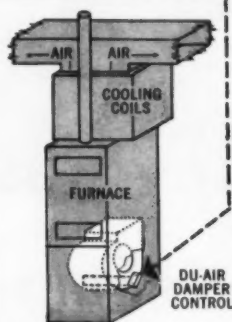
**for furnaces
 with add-on coils
 up to 5 tons**

With industry's most complete direct drive blower line, Morrison solves the problem of inadequate air on furnaces with add-on coils of up to 5 tons. Now you can get any CFM requirement at any Static Pressure differential — *adequate air anywhere*. And you benefit from such basic Morrison advantages as compact overall dimensions to meet individual space requirements . . . top-quality construction . . . quiet, trouble-free service.



NEW! MORRISON DU-AIR
 with Direct Drive Blowers...exact
 heating-cooling CFM *automatically*

Actuated by a combination heating-cooling thermostat, any unit equipped with the new Du-Air damper control changes air flow automatically . . . delivers the exact amount of air for ideal heating or cooling with a flick of the switch! No pulley changes. No motor-operated dampers, two-speed fans, fans in series or fans operating individually. Adaptable to present systems, without additional space requirements.



**TYPICAL INSTALLATION ON UPFLOW
 HEATING AND COOLING COMBINATION.**
 Patent Pending. Deluxe model shown. Other models available.

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*Write for performance
 data on these latest
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Quick, low cost insulation of duct work with 3M Brand Adhesives

NONFLAMMABILITY DURING INSTALLATION. Solvent-free Adhesive EC-321 won't burn during application. It is safe to use even near an open flame because it can't burn when wet. Thus, you can apply insulation anywhere without fear of fire. EC-321 supplies a durable bond that resists high heat, moisture and vibration. It even bonds right through thin films of oil or condensed moisture, making metal preparation easier. Roll, brush or spray it on!

UNUSUALLY HIGH COVERAGE. Adhesive EC-104 provides exceptional coverage . . . quickly and easily . . . for greater economy. Brushing, you can coat up to 25 square feet with one pint. Spraying goes even farther! One pint covers 44 square feet; a gallon—350 square feet. EC-104 gives you fast grip even when wet. And still . . . you get the convenience of long open time.



SEE WHAT 3M ADHESIVES CAN DO FOR YOU. There's a 3M Brand Adhesive or Sealer—each uniformly exact—for every insulation need. Contact your 3M Field Engineer. For free literature telling how these time-tested products can help keep your installations at peak efficiency, reduce future repairs, write on your company letterhead to: 3M, Dept. YJ-99, St. Paul 6, Minnesota.



ADHESIVES, COATINGS AND SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW





LAST MINUTE DETAILS of the day-long program for men and women are reviewed by Eau Claire committee (l to r) L. G. Hestekin, Mrs. R. A. Hovland and R. A. Hovland

being ventilated to the attic. He also said that when a large quantity of moisture-laden air is discharged into the attic space, the wooden structural members of the building which are dry tend to absorb the moisture. Thus when the heating season is over and the wood begins to dry out expansion and contraction take place, causing cracks to appear in plaster ceilings and walls. This situation, he pointed out, does not occur when warm air distribution systems are used to circulate air and to control humidity throughout the house.

Electric furnaces were recommended for use in applications where people wish to use electricity as the fuel and yet want the advantages of forced warm air circulating systems.

Utilities Can Offer Cheap Power

Another type of electric forced warm air distribution system utilizing baseboard diffusers with electric resistance heating elements located in the baseboards was described by James W. Miner, North Central Sales, Milwaukee. Mr. Miner said that many dealer-contractors do not feel that electric heating will come to their areas because the present electric rate is too high. He said that this is not true because electric heating will come to any area where the power company becomes interested in the load it will provide. When the power company decides to offer electricity for heating purposes, it will set a rate low enough to attract customers. One example he gave is the

Union Electric Co. of St. Louis which had been charging $2\frac{1}{4}$ cents per kwh as its minimum rate two years ago but has since reduced its minimum rate for electric heating to 1 cent per kwh. He said that this was done because the power company's officers realized that new equipment installed to handle the load required for summer air conditioning equipment being added to the lines provides a surplus of unused, expensive equipment during the winter months, and that this situation makes it possible to produce electricity for electric house heating that would be profitable to the company even at a 1 cent per kwh rate.

Mr. Miner was supported in his points of view by Robert C. Matzen of the same company, who stressed the need for improved salesmanship on the part of dealer-contractors and the promotion of central air distribution systems using electricity as fuel in place of radiant electric resistance baseboard wall and ceiling unit applications. He said that these sales points could be based around personal investigations that he has made to find out why people buy electric heating systems.

Why They Buy Electric Heat

Mr. Matzen pointed out that in general people will buy electric heating systems because of: 1) assumed safety benefits; 2) individual room control; 3) promotion of electricity as the "modern way" to heat a home. He said that each of these features

could be used by the warm air dealer-contractor to sell central systems using all types of fuels and offering all the advantages of forced warm air distribution.

The Wisconsin association holds day-long district meetings throughout the summer in different parts of the state. These meetings begin at 10:00 a.m. The business sessions adjourn at noon for luncheon and convene again at 1:30 with discussions of the problems being faced by Wisconsin dealer-contractors. At 5:00 o'clock a social hour is held which is followed by a 6:00 o'clock dinner. This format has proven very successful as attendance seems to grow larger with each meeting.

Lawrence Appoints Committees For Pa. Association

AMBRIDGE, PA. — Bernard Lawrence, Greenville, Pa., president of the Sheet Metal, Air Conditioning and Roofing Contractors Association of Pennsylvania, has appointed the following to serve on standing committees: R. E. Winger and Vernon Hunter — Heating; Jack Trost and Carl Ammon — Sheet Metal; J. E. Harper and Frank Cordes — Auditing; Bernard Lawrence, A. J. Sabathne and E. W. Liebermann — Constitution and By-Laws; Bernard Lawrence and A. J. Sabathne — Legislative; R. Meckley and Paul

(Continued on page 112)

the quality tells ...
the quality sells

JANITROL

winter air conditioners



featuring

Janitrol

Multi-Thermex

Heating Heat



*Janitrol presents...furnaces of the future
...ready now to help you sell and grow!*

all new

JANITROL Series FVS gas-fired WINTER AIR-CONDITIONERS

FVS Winter Air Conditioner with trim, two tone cabinet, is completely accessible from the front.

Loaded with exclusive features no other line in the industry can match...yet priced competitively for volume sales!

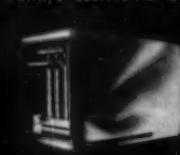
The brand of winter air conditioning you choose to sell is vitally important to your income, your future security, your business growth. So it pays to choose wisely, and align yourself with the brand that gives you the most to sell, the most to tell. In winter conditioners, that means Janitrol. A look at the brilliant all-new 1958 FVS Series Conditioners for all gases tells you why in a hurry. Never before in heating history has *any* furnace offered so much to help your business grow and profit!

Convertible for full-performance cooling at minimum cost!

In this brilliant new Janitrol FVS Conditioner Series, the standard blower size is adequate for cooling in most installations! A damper changeover kit is available to convert rear air deflector from fixed to movable type, and allow cooling air to bypass the heat exchanger.

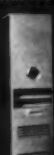
There's a quality-built **JANITROL** gas-fired winter air conditioner for every need!

Janitrol Horizontal Conditioners



Controls included. Accessory filter assembly. Natural, mixed or LP gases. 65,000 to 150,000 Btu input.

Janitrol Counterflow Conditioners



Natural, mixed or LP gases. Easily convertible for cooling. 80,000, 100,000 and 120,000 Btu.

Especially designed for basementless homes. Air-jacketed construction for safe zero clearance installation back and sides. Approved for installation directly on combustible floors without the use of special protective accessories. Full front access. Thermostat, automatic controls and filter included.



The Look of the Future! New slim-trim styling . . . clean, uncluttered, compact. New warm-tone neutral colors to complement the decor of any room, harmonize with other appliances throughout the house.

The crisp, rectangular design and flush front enhance the built-in effect. There are no humps or bulges to waste valuable floor space. Here is simplicity and richness . . . beauty to be lived with and admired.

New Low Overall Cabinet Heights. Only 54 inches for 65,000 to 120,000 BTU models. Only 56 inches for 140,000 through 200,000 BTU models. All models adaptable for High Boy or Low Boy installation at close clearances.

Fully Accessible from Front. All internal parts from blower to heat exchanger are easily reached, simply by removing front panels. Snap-lock panel design. No screws.

All Models through 160,000 BTU Factory Assembled and Wired. Save time and labor on the job.

Matching Outlet Plenum (Optional). Knockouts on front and both sides for use when cutting opening for horizontal duct take-off. Insulated so cooling coil can be added later.

New Quietness in Operation. Acoustically treated blower chamber, cushion-mounted blower and blower motor, full-floating heat exchanger and air-cooled side panels provide a new concept of quiet operation, without annoying vibration and expansion-contraction noises.

Prelubricated Blower Bearings. Randall, "Deep Well Reservoir" sintered bronze type. Without equal for quiet operation and freedom from effects of maintenance neglect. Lubricant supply renewable through drilled and tapped hole made to take a small, collapsible tube of lubricant.

New Dirt-tight Base Plate with Leveling Bolts. Assure easy installation, with no grouting necessary. Knockouts for inlet opening in base plate when making a High Boy type installation; also in both side panels.

Multi-Thermex Heat Exchanger. Warranted for 10 years. Welded assembly of 18-gauge tubes and 16-gauge top and bottom tube sheets. Horizontal corrugations in vertical tubes provide 50% more heating surface, maximum heating efficiency. Famous Janitrol Ampli-fire ribbon flame burners, removable in seconds for inspection, or when necessary when changing type of gas . . . no fasteners are used or tools required.

Seven Sizes 65,000 to 200,000 BTU per hour input. FVS 65-85, FVS 80-85, FVS 100-85, FVS 120-85, FVS 140-85, FVS 160-85 and FVS 200-85. All sizes AGA approved against 0.5" W. C. system static to meet new code requirements for units convertible to cooling. Full range of models. AGA approved as "Unit Heaters for non-residential space heating".

Call **WESTERN UNION** Now!

Address Your Collect Wire to:

HARRY C. GURNEY, General Sales Manager
Janitrol Division, Surface Combustion Corp.
Columbus 16, Ohio (In Canada: Wire Moffat's Ltd., Toronto 15)

JUST SAY—"Rush me full details on Janitrol Select Dealer Program"

You'll do better by far as a . . .

JANITROL SELECT DEALER

WIRE COLLECT NOW

for proof . . . and a preview of the profitable future that's yours to enjoy!

A ROOF 270 FEET IN DIAMETER!

...and the beauty of Follansbee Terne



Alexander Memorial Arena Building,
Georgia Institute of Technology

Architect:

Aeck Associates, Atlanta, Georgia

General Contractor:

Mion Construction Company, Atlanta, Georgia

Roofing Contractor:

R. F. Knox Company, Inc., Atlanta, Georgia

Distributor:

Conklin Tin Plate & Metal Co., Atlanta, Georgia

One of the most striking metal-roofed structures to be built in recent times is the new Alexander Memorial Arena of the Georgia Institute of Technology.

The entire seating area for the 7,000 seat arena is underground with only the huge, inverted saucer-like roof projecting above the surrounding ground level.

Measuring 270 feet in diameter, the roof contains 725 squares of Follansbee Terne arranged in batten and standing seams.

Follansbee Terne, or "tin" as it is often called, was chosen by the architects, institute officials and contractors because it would produce a roof which would harmonize with the surrounding campus and give a long service-free life.

Being chosen for its beauty and promise of long life is nothing new to Follansbee Terne. Buildings of all types and sizes in all parts of the country with roofs of Terne have given fine service for several lifetimes because they are made of durable, fireproof metal.

The next time you are called in on a metal roofing job, suggest the use of Follansbee Terne. It's wonderful to work with and will provide a beautiful, lasting roof for the building owner.



Follansbee Terne is carried in stock by
Leading Sheet Metal Distributors Everywhere

FOLLANSBEE

STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

Sales Offices in Principal Cities

WITH THE ASSOCIATIONS

(Continued from page 108)

Fox Valley Told: Check Builder's Credit Before Offering to Bid on New Work



ONE HUNDRED AND TEN registrations kept 25th Annual Field Day Committee busy. Dealer-contractors C. R. Alexander, George Bushman and Harry Gengler "check in" Wayne Limbert, Condensation Engineering Co.

BATAVIA, ILL. — The three most important functions of a dealer-contractor are: 1) planning business activities, 2) scheduling work, and 3) managing employees, according to C. V. Amenoff, secretary of the Fox Valley Associated Contractors. Mr. Amenoff, speaking at the 25th annual Field Day meeting of the Fox Valley Furnace and Sheet Metal Contractors Association, told the dealer-contractors how better profits could be achieved through adequate guidance of business operations.

One of the points he discussed was the screening of credit seeking prospects, especially builders of unknown financial status. He recommended that every credit application be reviewed and investigated before work is started.

In pointing out how scheduling



ENLARGING UPON the highlights of his talk, C. V. Amenoff (left) points out to Burrell Conover, president of the Fox Valley Furnace and Sheet Metal Contractors Association, how problem probing can put more money in the till for dealer-contractors

of work can help solve some costly delivery problems, he recommended that on large jobs the major equipment be delivered to the job site rather than to the company warehouse. This not only avoids the extra transportation costs but eliminates the extra handling required at the warehouse.

Managing employees includes much more than just scheduling their work so that they stay busy throughout the day, he said. It also includes keeping them informed as to why certain procedures must be followed and providing a continuous educational program which will keep them up to date on new equipment and techniques of installation.

Another point mentioned by Mr. Amenoff is the necessity for a continuous public relations program. He said that a strong public relations program is necessary to keep customers and prospects aware of the services the company is performing for the community.

The annual field day program includes golf, horseshoe pitching, bridge and pinochle games, and other social activities. Otto Zeman, Barney Olson, Inc., won the first golf prize, with a low gross score of 72. Mickey Keefer, General Controls Co., won the low net golf prize, with a 70. Champions at horseshoe pitching were dealer-contractors Clint Maves, Maves Heating Co., Batavia, and Bill Perez of the Valley Heating Co., Aurora.

Pennsylvania Appoints Standing Committees

(Continued from page 108)

Gehrig — Roofing; R. E. Winger, John Henke, Alex Gardner and E. W. Scarborough — Membership; J. J. Simmons and E. W. Scarborough — Business Management; Paul Steiner and J. J. Simmons — Public Relations; W. E. Keist and A. E. Dansereau — Residential Air Conditioning.

Chicago Golfers Meet at Itasca

ITASCA, ILL. — The Chicago Warm Air Golf Association held its second tournament of the season at the Itasca Country Club. The Peoria system was used to adjust gross scores to permit all contestants to qualify



LOW SCORE MAN Bob Shake (center) receives his prize and congratulations from George Anderson, association president (left), and Lars Schulein, program chairman

for both the annual and sectional trophies. Prizes were awarded to:

Bob Shake — OverHead Heaters, Inc.

B. Domenz — Scarlet Glow Engineering Co.

Dan Heffernan — The Trane Co.
John Nimieth — Robinson Furnace Co.

Al Verbeek — Verbeek Heating Co.

(Continued on page 114)

WEATHER
 BOSTON 68°
 NEW YORK 65°
 PHILADELPHIA 62°
 WASHINGTON 60°

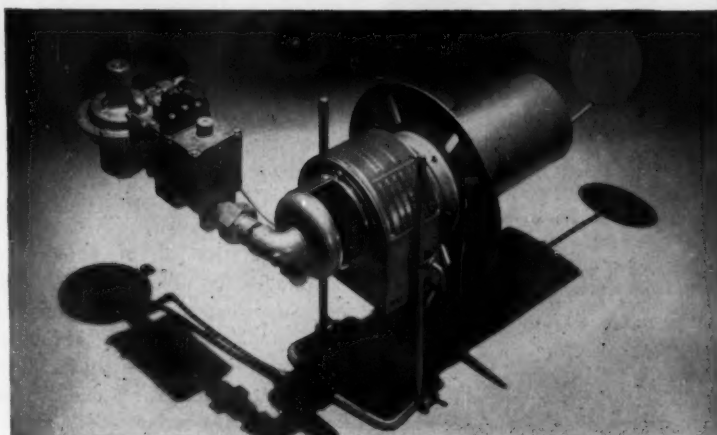
DAILY NEWS

PHILADELPHIA 62°
 PITTSBURGH 58°
 RICHMOND 55°
 WASHINGTON 60°

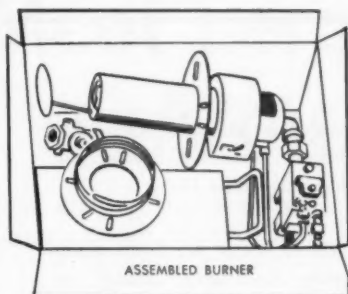
BARBER GUN HEAT BURNERS CUT INSTALLATION COST...

Become Leader in 3 Years...

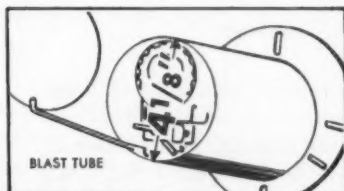
The Barber GUN HEAT Burner has become a leader in the field of Inshot gas conversion burners in only three short years. This success story could only be accomplished with the full endorsement of the heating contractor. The following three specific qualities in the GUN HEAT sold the contractor: modern design using quality materials; easy serviceability; and ease of installation. The main feature for the success of the GUN HEAT is its ease of installation.



The contractors have endorsed the following facts: Every burner is prefired at the factory and shipped with the manifold controls completely assembled, saving the installer valuable time.



The blast tube has a 4 1/8 inch diameter to fit most oil burner



openings. The adjustable mounting flange exactly positions the burner prior to final bolting to the heating plant; A floor stand is supplied when the burner is used in a coal furnace or boiler.

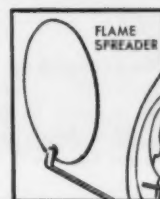


To eliminate the necessity of building a combustion chamber, GUN HEAT has a flame deflector made of the same stainless steel used in jet engines. The distance and angle are right for consistently

good combustion in almost all applications.

Since primary and secondary air shutters are both out in the open, it's easy to make final adjustment and lock-up.

We have mentioned the installation features that make the GUN HEAT a leader. For complete specifications and prices—fill out the coupon below.



THE
 AGA
 LISTED

Barber

MANUFACTURING COMPANY
 1052 East 134th Street, Cleveland 10, Ohio

Yes, I am interested in more information and prices on the GUN HEAT Burners.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

WITH THE ASSOCIATIONS

(Continued from page 112)

Milwaukee Contractors Ignore Rain; 64 Complete 18 Holes in Annual Meet



GOLF TROPHIES are examined by Milwaukee association's picnic chairman Lyle O'Leary (left), Jim Viall and (seated) Robert S. Schmieder, executive secretary



SHEEPSHEAD, Milwaukee's favorite card game, is played by (l to r) Kurt Aleithe, Al Huffman, Ernest Holming, Calvin Droegkamp and Carl Marth

PORT WASHINGTON, Wis. — Wet weather had very little effect on attendance at the Milwaukee Sheet Metal Contractors' annual stag picnic. One hundred and forty-two contractors and suppliers showed up, some before 9:00 a.m., to play golf. In spite of rain, 64 golfers completed the 18 holes required to compete for the annual trophies for low gross scores. One trophy is awarded to the contractor with the lowest score and a second is given the supplier turning in the lowest score.

Rules of the golf tournament do not permit the previous year's winners to compete for the current year's trophies. Last year Art Curtes, Auer Steel Co., and Ben Brozek, Brozek Heating and Air Conditioning Co., were the winners. These two turned in the lowest scores again this year, but because of the contest rules were disqualified as winners. A low gross of 77 was turned in by M. Keifer, General Controls Co., who was awarded the suppliers' trophy, and Ralph A. Winkler, A. E. Wink-

ler & Sons, Milwaukee, turned in a gross score of 90 to win the contractors' trophy. Other activities of the annual outing were curtailed because of the wet weather, but a large 100 ft tent provided room for non-golfers to play the favorite card game of the area — Sheepshead.

Chicago Group Meets For Second Tournament

(Continued from page 112)

George Bunt — Jones Sheet Metal Shop

Norman Lund — C & H Building Specialties

George Anderson — Condensation Engineering Co.

C. R. Bennett — Warren Barr Supply Co.

Joe Butler — Auer Register Co.

Bernard Sundberg — Alladen Engineering Co.

Blind Bogey prizes went to:

Joe Perna — Jos. Butler & Co.

Jim Doar — Scarlet Glow Engineering Co.

Al Verbeek — Verbeek Heating Co.

(More association news on page 116)

Coming Events

November

Nov. 2-5 — Air Conditioning and Refrigeration Institute, 11th exposition. Atlantic City Auditorium, Atlantic City, N. J. George S. Jones Jr., managing director, 1346 Connecticut Ave., N. W., Washington 6, D. C.

Nov. 30-Dec. 2 — Northamerican Heating & Air-conditioning Wholesalers, annual convention. Chase-Plaza Hotel, St. Louis. Wilbur R. Bull, managing director, 1200 W. Fifth Ave., Columbus, O.

December

Dec. 1-2 — National Warm Air Heating and Air Conditioning Association, committee

meetings. Chase-Plaza Hotel, St. Louis, Mo. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

Dec. 3-4 — National Warm Air Heating and Air Conditioning Association, annual convention. Chase-Plaza Hotel, St. Louis, Mo. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

January

Jan. 17-21 — National Association of Home Builders, annual convention. Hilton and Sherman Hotels, Chicago. John M. Dickerman, executive director, 1625 L St., N.W., Washington 6, D. C.

(For additional Coming Events see page 116)



Meet Leroy Woodruff ... Armstrong's triple checker

Triple checking Armstrong heating and air conditioning equipment is Leroy Woodruff's responsibility.

As Armstrong's Quality Control inspector, Leroy insists on production excellence. And with nineteen years' experience he knows what it takes to make good equipment even better.

Leroy and his staff of well-trained inspectors see to it the most exacting standards are met at every step along Armstrong's huge pro-

duction line — from the welding of the exterior cabinets, to the all-important final step of carefully checking out the electrical system. And Leroy and his men have the authority to halt production if they find the slightest variation from the established standards of perfection.

Every man in Armstrong's Quality Control Department considers it his personal responsibility to maintain Armstrong's reputation for quality . . . but then so do the

hundreds of other Armstrong engineers, technicians and craftsmen.

Together they enable Armstrong to guarantee dealers across the country the very finest — yet the most competitive — heating and air conditioning equipment made.



Division of National Union Electric Corporation

WHEN YOU INSTALL ARMSTRONG, YOU INSTALL QUALITY

WITH THE ASSOCIATIONS

(Continued from page 114)

RDMI Campaign Aimed at Nation's Home Owners

CHICAGO — The Roof Drainage Manufacturers' Institute reports that it has recently added three new manufacturers of rain carrying equipment to its membership, bringing the

total to 18. The new members are: Standard Mfg. Co., Omaha; Ferdinand Dieckmann Co., Cincinnati; and Cincinnati Elbow Co., Cincinnati. According to R. L. Seiple, Republic Steel Corp., Berger Div., who is chairman of the executive board of RDMI, the institute's publicity and promotion program has been augmented by a periodic series of newspaper releases encouraging

home owners and builders to use gutters and downspouts and promoting the interests of sheet metal contractors in the application and installation of roof drainage products. Members of the executive board, in addition to Mr. Seiple, are: Frank S. Neal, Wheeling Corrugating Co.; R. G. Campbell, Benjamin P. Obodyke, Inc.; E. J. Cullen, Inland Steel Products Co.; A. Thomson, Tanner & Co.

Coming Events

(Continued from page 114)

Jan. 31-Feb. 3 — New York State Sheet Metal, Roofing & Air Conditioning Contractors' Association, annual convention. Hotel Stuyvesant, Buffalo, N. Y. Clarence J. Meyer, secretary, 567-569 Genesee St., Buffalo 4.

February

Feb. 1-4 — 2nd Southwest Heating and Air Conditioning Exposition. Memorial Auditorium, Dallas, Tex. E. K. Stevens, exposition manager, International Exposition Co., 480 Lexington Ave., New York 17.

Feb. 1-4 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, semi-annual meeting. Baker and Adolphus Hotels, Dallas, Tex. R. C. Cross, executive secretary, 234 Fifth Ave., New York.

Feb. 4-5 — Sheet Metal and Warm Air Heating Contractors' Association of Indiana, annual convention. Severin Hotel, Indianapolis. J. W. Ridgway, president, 53 W. Meredith, Frankfort, Ind.

Feb. 8-10 — Sheet Metal Contractors' Association of Illinois, annual convention. Pere Marquette Hotel, Peoria. Jay E. Harms, secretary, 1619 N. Sheridan Rd., Peoria.

Feb. 12-13 — Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Lowry Hotel, St. Paul. Dale Lynch, secretary, 5 W. Lake St., Room 301, Minneapolis 8.

Feb. 15-18 — Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich.

James C. Barrett, Michigan Department of Health, Lansing 4.

March

Mar. 7-9 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Schroeder Hotel, Milwaukee. Robert S. Schmieder, secretary, 8320 W. Bluemound Rd., Milwaukee.

Mar. 30-Apr. 1 — Gas Appliance Manufacturers' Association, annual convention. Greenbrier Hotel, White Sulphur Springs, W. Va. Gas Appliance Manufacturers' Association, 60 E. 42nd St., New York 17.

April

Apr. 4-7 — Oil Heat Institute of America, annual convention and exposition. Park Sheraton Hotel and the Coliseum, New York City. R. H. L. Becker, managing director, 500-5th Ave., New York 36.

Apr. 28-30 — Roofing and Sheet Metal Contractors' Association of Florida, annual convention. Langford Hotel, Winter Park, Fla. Eldon G. Goldman, P. O. Box 543, Winter Park, Fla.

June

June 16-18 — Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania, annual convention. Lawrence Hotel, Erie, Pa. Earl W. Liebermann, secretary, 1411 Merchant St., Ambridge, Pa.

Carrier Furnace sales doubled every year since introduction!

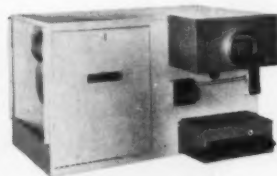
**Carrier Furnaces must be outstanding to make such a record.
A complete line meets the needs of every home. Look into it!**

Since their introduction, sales of Carrier Furnaces have doubled every year. You can't beat that for proof of a quality line. Four of many gas-fired models are shown here—they're available in oil-fired models, too. Every Carrier Furnace is a Furnace with a Future—designed

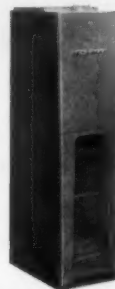
for the future addition of air conditioning. Every one reflects the Carrier reputation for efficient, economical, dependable performance. Get the details on a Carrier franchise today. The Carrier distributor to contact is listed in the Yellow Pages. Carrier Corporation, Syracuse 1, N. Y.



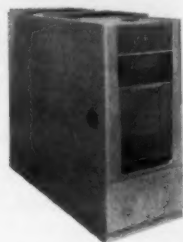
Upflow Weathermaker. Compact even in the extra large capacity sizes. 9 models with input capacities from 75,000 to 185,000 Btu/hr.



Horizontal Weathermaker. Fits in perfectly with the growing trend for homes without basements. Input capacities 85,000 to 130,000 Btu/hr.



Downflow Weathermaker. For homes with concrete slab or crawl space foundations. Input capacities 80,000 to 160,000 Btu/hr.



Lo-Boy Weathermaker. Less than 4 feet high and packed with feature after feature. Input capacities 75,000 to 200,000 Btu/hr.

BETTER AIR CONDITIONING FOR EVERYBODY

EVERYWHERE



EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Gas, Oil Furnaces

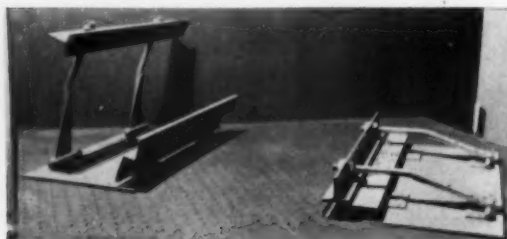
"AIR EASE" FURNACE LINE with "V" design removable vestibule door to permit installation of a 9 in. oil burner in 7 in. vestibule—*Johnson Furnace Co.*, 2129 W.



117th St., Cleveland, O. Large capacity blowers are wired to bonnet switch. Installation consists of connecting thermostat draft diverter and fuel line. Line includes wide range of sizes and models.

Pattern Punch Machine

PATTERN PUNCH machine for braking gutters, gravel stops, fascia, etc.—*A. M. Bowles Co.*, P. O. Box 7508,



Houston 7, Tex. Unit accommodates pattern widths of up to 24 in. stretch-out, to any length, according to the manufacturer.

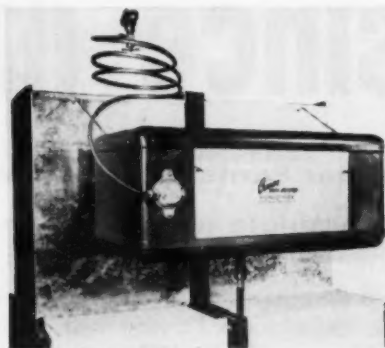
Long Span Roof Deck

T-STEEL ROOF DECK in spans up to 32 ft—*Inland Steel Products Co.*, 4023 W. Burnham St., Milwaukee 1. Narrow-ribbed top surface is designed to facilitate application of insulation and roofing materials; lower flanges serve as supporting ledges for acoustical ceiling tile or panels. Wiring and lighting troughs can be concealed in 12 in. spaces between webs. Deep formed

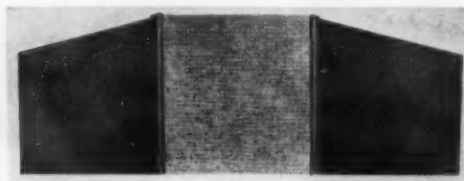
webs along one side of each panel are designed to strengthen the deck. Deck is cold rolled from galvanized steel in 4, 5, 6 and 8 in. web depths with standard 12 in. width module. It is available in 16 and 18 ga.

Furnace Humidifier

"CRONCO MIST-MASTER" humidifier with no plates, floats or moving parts—*Cronstroms Mfg., Inc.*, 4225 Hiawatha Ave., Minneapolis 6. Designed for application in all types of forced warm air heating systems,



unit is installed by tapping into supply and return air plenums. Warm air is drawn through intake into humidifier chamber where fine mist which circulates constantly is absorbed by dry air. Air is then filtered through plastic absorption pad before being circulated. Control dial provides desired relative humidity. Cabinet is all aluminum.



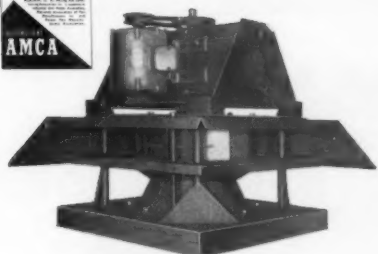
Flexible Connector Material

"ASBESTOSEAL" FABRIC for flexible duct connectors, made of asbestos coated with aluminum-colored neoprene—*Duro-Dyne Corp.*, Route 110, Farmingdale, N. Y. Coating is designed to add strength and prevent excessive air leakage. Material, designed for use with heating and air conditioning ducts, is made in all three of the company's styles of flexible duct connectors.



Demonstrating...

how to save space and money
 on your next air handling jobs



V-belt driven centrifugal type with backwardly inclined blade wheel. 10 sizes. Capacities from 1,500 to 26,500 CFM. (Shown above with weather enclosure and two sides of air apron removed.)

YOURS... ALL YOURS... with the Clarage Centrilator®*
 power roof ventilator. Handles static resistances to 2". Requires no floor space. Minimum installation cost. Unequalled accessibility. High efficiency for low operating cost. Ideal solution for numerous industrial systems such as the one shown above.

Get full information on the Clarage Centrilator and its exclusive Jet Siphon™ Air Flow Director feature. Request Bulletin 550 or contact the nearest of our 58 sales engineering offices today. CLARAGE FAN COMPANY.

* Patent applied for

Dependable equipment for making air your servant

CLARAGE

Kalamazoo, Michigan

equipment developments

(Continued)

Power Slitting Shear

POWER SLITTING shear in 10, 14 and 20 ga mild steel capacities, with reversible and interchangeable cutters—*Beverly Shear Mfg. Co., 3004 W. 111th St., Chicago.* High carbon, high chrome cutters are driven through steel shafts by heavy duty gear set connected



to enclosed worm gear drive. Electric motor is directly connected to worm gear housing. Improved back gage is clamped to both sides of frame. Back gage slide bar is channeled to retain and align sheet as it moves through the machine. Back gage may be removed leaving entire deep throat open for free hand slitting. Cutting width range is 1½ to 30 in. Spring loaded sheet retaining roller automatically applies pressure to inside cut edge of sheet to hold it in proper alignment.

Heat Pump

"WEATHERTRON" 5 ton heat pump with weather-resistant outdoor condensing unit and indoor air handling unit—*General Electric Co., Air Conditioning*



Dept., Troup Highway, Tyler, Tex. Compressor operates at 3450 rpm; features belt-driven, variable speed ball bearing blowers; double driers; and baffle which isolates blower from compressor to facilitate servicing and reduce noise. Vertical air handling unit has 115/230-v blower motor which is cushion mounted and belt-driven. Air handling unit can be converted to counterflow operation.

Fan-Light Hoods

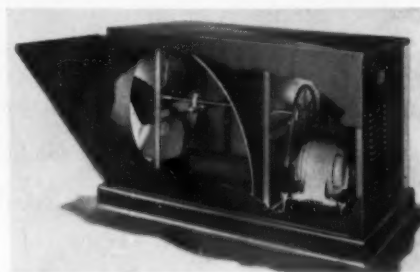
SERIES 6000 FAN-LIGHT kitchen hoods in 36 and 42 in. lengths and copperized or silverized finishes—*Emerson Electric Mfg. Co., 8100 Florissant Ave., St.*



Louis 36, Mo. Self-contained model 6800 has built-in fan and light fixture; fan duct is 3¼×10 in., can be directed out the back of the hood, requiring no cabinet space, or upward through back of cabinet. Unit has 750 cfm fan, pushbutton switches for fan and lights. Model 6600 island hood and model 6000 standard model require single cut-out in cabinet bottom for fan housing.

Penthouse Ventilator

"ROMLAIR L-BLOW" penthouse ventilator for commercial and industrial applications—*Romla Co., 13101 S. Main St., Los Angeles 61.* LBA series has spark-



proof aluminum alloy high speed propellers, designed for exhausting against resistance of kitchen exhaust hoods, industrial processing and drying ovens, etc. LBS models, with wide blade, slow speed steel propellers, are suitable for commercial and industrial ventilation applications. Electric motor is isolated from air stream. Weatherproof hood protects fan opening; automatic shutters may be substituted for cowl to provide complete closure when unit is idle.

Drier-Strainer-Filter Unit

"TRAP-DRI" MODEL 410 combination strainer, filter and drier designed to protect refrigeration systems against acids, moisture and dirt—*Heating and Air Conditioning Controls Div., Controls Co. of America,*



Aerial view of Broadmoor Hotel, site of the 1959 national convention of The Sheet Metal and Air Conditioning Contractors National Association.

Famous Broadmoor Hotel uses copper for over 40 years!

Sheet Copper, Copper Gutters, Downspouts and Flashing for Original Building and Expansion Units used 100% by Local Roofing Contractor

In just the past two or three years, the Broadmoor Hotel has used nearly 20 tons of Chase® Copper for flashing, downspouts, gutters and other purposes as it has carried on a continuing expansion program.

Known the country over for the finest facilities and service, the Broadmoor Hotel

insists on the finest materials when it builds. Naturally—*this means Chase when it comes to copper.*

Next time you need copper, take a tip from the Broadmoor. Insist on copper by Chase—available from nearby warehouses and District Offices. Or write for more details to Chase at Waterbury 20, Connecticut.



HAROLD HEYSE, President, Heyse Sheet Metal and Roofing Company of Colorado Springs, says: "We have used Chase Copper for years—and 100% since 1945—at the Broadmoor and on every job calling for copper."



BRASS & COPPER CO.
WATERBURY 20, CONN.

Subsidiary of **Kennecott Copper Corporation**

THE NATION'S HEADQUARTERS FOR ALUMINUM • BRASS • BRONZE • COPPER • STAINLESS STEEL

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A complete line of VICTOR GAS, OIL & COAL heating equipment, and air-conditioning, meets every installation problem and assures you of making *more money* from faster sales! As a VICTOR dealer you can count on fewer customer complaints and call-backs, which means lower service expense—higher profits!

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dramatic demonstration closes sales fast

The Twin Thermometers in this Table-Top Demonstrator tell the story of patented VICTOR FIN efficiency. One side of the table-top furnace has FINS. The other does not. It proves, right before the prospect's eyes, that exclusive VICTOR FINS save up to 30% in fuel costs.



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FURNACE CO.**

Quality Furnaces Since 1890
1322-42 N. Capitol Ave
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Tom Williams, Sales Mgr., HALL-NEAL FURNACE CO.
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Please rush full information on the Exclusive VICTOR Franchise!

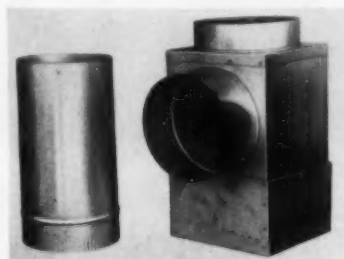
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equipment developments (Continued)

2450 N. 32nd St., Milwaukee 45.
Chemical blend absorbs water and acid without releasing any substance to refrigerant. Combination unit is a honeycomb filter type made by winding coarse cotton yarn around open metal supporting core. Diagonal winding forms diamond-shaped filtering tunnels; each overlapping layer is roughed to form interlacing filter. Solder or flare type connections, and 1/3 to 7½ ton capacities are available.

Chimney Kit

MODEL CK7 COMBUSTION and clean-out unit which catches rainwater and other condensation at bottom of flue eliminating need for rain caps and baffles—Majestic Co., Inc., 733 Erie St., Huntington, Ind. Designed for "Thulman" line of prefabricated

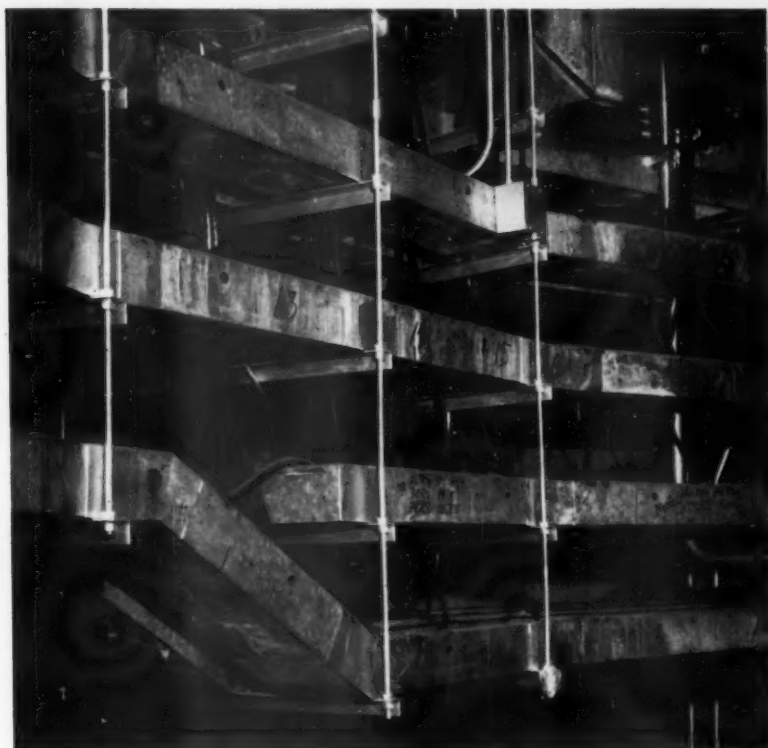


metal chimneys, unit also serves as a chimney cleanout location; cap at bottom can be taken off for periodic removal of soot or other deposits, or unevaporated moisture. Unit is made of stainless steel. A 7 in. side inlet in stainless steel "T" is arranged for smoke pipe connection. Other sizes and types are available.

Range Hood-Fan

"SELECTA-MATIC" series of range hoods in 30, 36, 42 and 48 in. widths, 21 in. from wall to front—Nutone, Inc., Madison & Red Bank Rd., Cincinnati 27, O. Units are available in copper or satin anodized aluminum, stainless steel, copper or antique copper enamel. Three different types of hood fans can be accommodated. Large filters can be removed and washed. Dials on control panel regu-

Why Contractor Prefers Armco ZINCGRIP Steel



Troughs made of Armco ZINCGRIP Steel conduct electrical cables throughout Indiana-Kentucky Electric Corporation's Clifty Creek Power Plant near Madison, Indiana.

New steels are
born at
Armco

Power plants are often a valuable source for sheet metal work such as lagging, ducts, and various other kinds of conduits. For example, literally miles of electrical cable troughs made of Armco ZINCGRIP® Steel were installed in a new power plant near Madison, Indiana, by Queen Products Company, Inc., Louisville, Kentucky.

"We prefer Armco ZINCGRIP because its ease of forming and fabrication cuts production costs," said C. V. Queen, company president. "We never have to worry about the coating flaking or peeling, and the bright, even spangle gives us an attractive product."

Takes severe forming

The zinc coating is applied by a special continuous hot-dip process pioneered by Armco. It will take as much forming as the base metal without flaking or peeling.

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is America's best selling fibre duct!

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- Mexico, D. F.

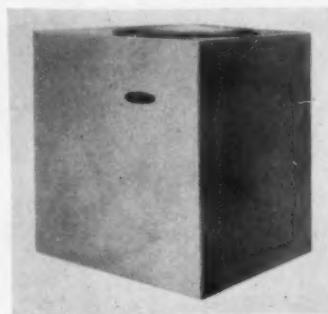
equipment developments

(Continued)

late 4-speed fan and two non-glare lights. Controls compensate for voltage variations in different areas. Power units are concealed within the hood.

Gas Air Conditioner

"MIRACOL" GAS-FIRED remote type air conditioning unit—Payne Co., 855 Anaheim-Puente Rd., La Puente, Calif. Air cooled absorption refrigerated unit supplies chilled water to



the cooling coil. Unit can be adapted for use with companion highboy, counterflow or horizontal furnace installations, or can supply cooling alone with fan-coil blower unit. Plastic water lines are used to the cooling coil.

Spot Welders

ROCKER ARM resistance type spot welders in air actuated and foot operated models—Universal Electroweld Div., Electric Arc, Inc., 152-1 Jelliff Ave., Newark 8, N.J. Units have KVA ratings of 10 to 75 and throat depths from 12 to 36 in. Nylon trunnion bushings require no oiling; contact switches need no adjustments, the company states. Improved tip spacing and heavy-duty frames are featured. Welders are single phase models.

Swaging Tool

No. 194-S SCREW TYPE swaging tool for use where sweat type fittings are needed in 1/2, 5/8, and 3/4 in. (o.d.) aluminum, brass, and copper tubing

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(natural gravity
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NEW LOW COST HIGH POWER VACUUM

New hidden, patented filter*

—3 times more power

The new Premier Model P-950 Vacuum, with the new hidden, non-clog filter, is the only true low cost furnace cleaner. The hidden filter gives you more usable capacity than other vacuums twice the size. You can clean 4-5 home furnaces without emptying. Yet it is so small it fits easily on the floor of your car. Over 2000 in use. Other models range from 16-48 qt. usable capacity, including 3 in 1 units; wet or dry, blower or shoulder vac.

*patent number 2814357



Model P-950

THE PREMIER COMPANY

Dept. 401, 755 Woodlawn Ave., St. Paul 16, Minn.
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Attention: Gordon L. Bowman, V. P. & Sales Mgr.
Please rush me FREE details on Premier Heating,
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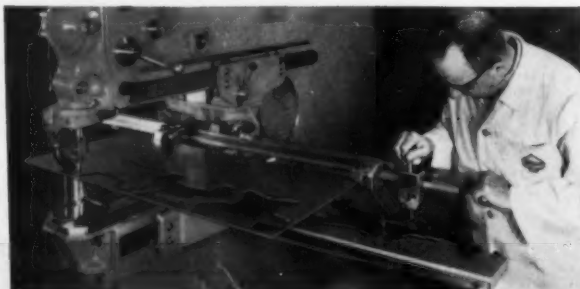
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Easily—
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Eliminate high tooling costs:

Sheetmetal is firmly clamped and guided by roller-bearing coordinates as operator effortlessly feeds tracer along template contours. Built-in rulers quickly position sheet for rectangular cuts. Circular cuts to 24" diameter are made through a special swivel ruler.

All-side-cutting punch pierces its own starting hole—cuts in any direction without distortion. Copy nibbles up to 9 gage steel—regular nibbling up to 0.20" steel—shears up to 1/4" steel.

Steplessly adjustable stroke and stroke position. Three models—throat depths 41", 49" and 59". Universal forming attachments available.

Write for further information!—Dealer inquiries invited!

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—nationwide sales and service of precision machine tools—
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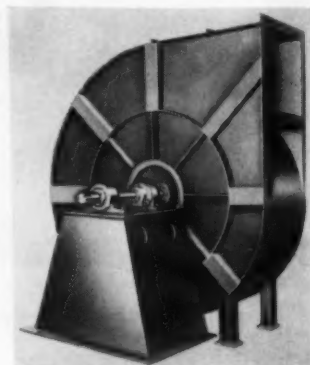
COSA CORPORATION, 405 LEXINGTON AVENUE, NEW YORK 17, N.Y.

equipment developments (Continued)

—Imperial Brass Mfg. Co., 6300 W. Howard St., Chicago 48. Unit has forged steel slip-on yoke. Chrome-plated plunger centers itself over the tube and swages it in screwing operation. Adaptor is changed by unscrewing holder, lifting out plunger, dropping in replacement and drawing holding ring finger tight, the company reports.

High Pressure Blowers

SERIES 2400 LARGE high pressure blowers with airfoil blades, rated from 3000 to 64,000 cfm at pressures



from 3/4 to 2 1/4 psig—Westinghouse Sturtevant Div., Dept. T-257, 200 Readville St., Hyde Park, Boston 36. Flow passages through wheel and housing are aerodynamically designed. Blower wheels are statically and dynamically balanced and stress relieved; rising pressure characteristic plus inlet air spin control are said to give stable air volume delivery for designed operating ranges and at reduced loads.

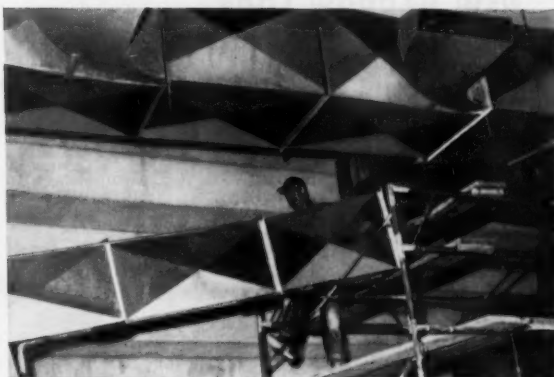
Lowboy Furnace

"RHEEMGLAS" LOWBOY gas-fired furnace in four sizes with input ratings of 100,000, 120,000, 140,000 and 160,000 Btu—Rheem Mfg. Co., 7600 South Kedzie Ave., Chicago 52, Ill. Combustion chamber and heat exchanger are lined with porcelain enamel, designed to increase life in heating and summer air conditioning systems. Matching coils and auto-

Why Bethcon Galvanized Steel Sheets are just right for ductwork



EASIER TO FABRICATE than other metals. Readily formed, easily joined by lock seams without tearing, buckling, or wrinkling.



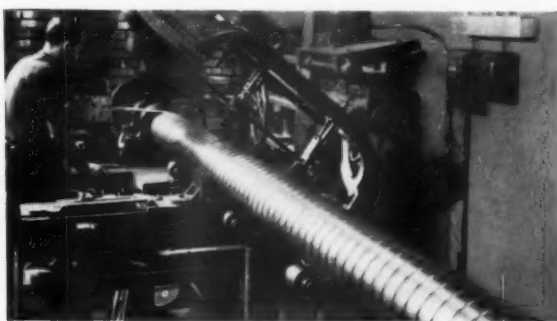
MUCH LESS SUSCEPTIBLE to local surface damage in handling and working. Will not break or flake.



QUICKER TO INSTALL because the greater strength of steel allows longer lengths with fewer supports.



LESS NOISE because steel does not expand and contract as much as other materials.



MORE VERSATILE than comparable metals. Can be formed into spiral pipe, is readily soldered or welded right on the job.



MORE ECONOMICAL both in material and installation costs. Savings run as high as 30 pct over competitive metals.

Bethcon sheets are the product of Bethlehem's continuous galvanizing lines. They are strong but ductile; rigid but workable; rich-looking yet low in cost. Make your next heating, ventilating or air conditioning job a Bethcon job.

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BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

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NEW NARROW LOOK

100,000 BTU
Counterflow Furnace
14" Wide

by **Western**
tuck·aire



CFD-14

DESIGNED FOR PERIMETER
HEATING AIA COMBUSTIBLE
FLOOR APPROVAL

- **COMPACT**—Narrowest counterflow gas furnace available in 100,000 BTU range. 14" wide, 28" deep, 70½" high.
- **RANGE OF SIZES**—60,000 to 100,000 BTU... 7 sizes.
- **SINGLE POINT SUSPENSION** of heat exchangers eliminates "expansion noises," metal fatigue and exchanger breakdown.
- **EASY TO SERVICE**—Utility connections, either side—slide-out blower—Filters easily removed without removing vent.

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equipment developments (Continued)

matic zone balancing systems are available.

Fixed-Flow Blower

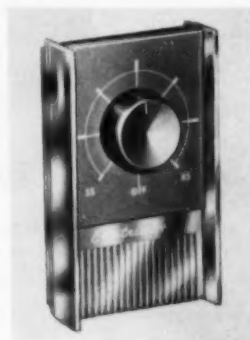
SERIES T BLOWER with motor which automatically adjusts its speed to compensate for changes in internal resistance in furnace or duct—Vik-



ing Air Products Div., National-U.S. Radiator Corp., 5601 Walworth Ave., Cleveland 2. Blower runs at slower speed, has larger inlets and larger discharge opening than previous direct drive units. Motors have pre-lubricated bearings.

Double Pole Thermostat

TYPE 1A66 DOUBLE POLE disconnect type electric heat wall thermostat for use where wiring codes require posi-



tive break of both sides of a 240-v line—White-Rodgers Co., 1209 Cass Ave., St. Louis 6, Mo. Finished in gold and beige vinyl-leather, unit has control knob which is a sensitive



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Someone has said that it is no longer possible for business to stand still, for those which are stationary are left behind by those who are "on the grow." Southern is dedicated to making better fasteners, giving better service, providing better packaging—at prices that are fair AND competitive. It is not strange that Southern Screw's growth has kept pace with those we serve. If yours is a growth company, Southern Screw in all probability is having an important part in your progress. If we are not now growing with you, perhaps it would be mutually beneficial to become a part of each other's growth pattern.

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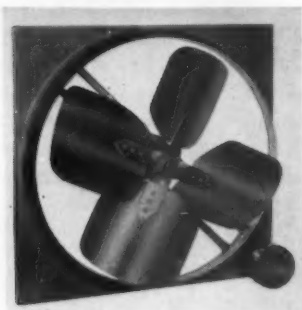
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equipment developments

(Continued)

thermal element, fully exposed to room temperature and radiant heat. Unit has heat range selection from 55 to 85 F, and an "off" position; no disconnect switch is required. Differential is $\frac{1}{2}$ deg. Flush-mounted unit is $4\frac{3}{4}$ in. high, $27\frac{3}{8}$ in. wide, extends outward $1\frac{3}{8}$ in. Strip gage on back shows exact amount of wire needed to fit terminals.



Attic Fan

ATTIC FAN WHICH CAN be mounted vertically or horizontally, available

with 24, 30, 36 and 42 in. blade diameters—*Meier Electric & Machine Co., Inc., Dept. AF-108, 3525 E. Washington St., Indianapolis 7.* Propeller blades are die-formed aluminum; propeller is electronically balanced. Fan is mounted in deep bell orifice in all-steel frame. Heavy-duty $\frac{3}{4}$ in. shaft is supported in sleeve bearing assembly and has balanced die cast pulleys. Ceiling shutters are automatic with double guide bars to prevent fluttering, and have fusible safety links. Wall shutters have been redesigned.

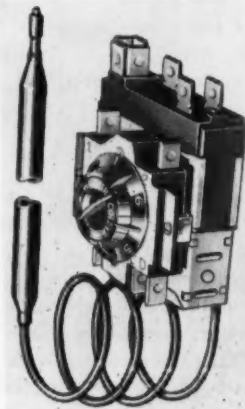
Water Heater

"ARISTOCRAT" 30, 40 and 50 gal water heaters with zinc-fused steel tanks—*EverHot Heater Div., Temperite Products Corp., 5241 Wesson Ave., Detroit 10, Mich.* The tank has deeply drawn convex heads designed to eliminate rust traps, ring flame burner for uniform heat, and wrap-around flue for rapid temperature recovery. Tank bottom matches shape of ring burner to expose heating sur-

faces evenly to flame. Air flow baffle channels heat onto tank surfaces.

Cycling Controls

SERIES C21 AND C22 slim cycling thermostat controls for air conditioning equipment—*Ranco, Inc., 601 W.*



Fifth Ave., Columbus 1, O. Rotary selector switch is also available. Manually-operated C21 unit has 3 deg minimum differential and 35 deg



STANDARD BRAKES

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



FOLDER BRAKES

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



PORTABLE BRAKES

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

6095

Hand Operated BENDING BRAKES

One Man Operation - Quick Adjustment - Rugged Construction



Descriptive Literature on Request.

DREIS & KRUMP
MANUFACTURING COMPANY
7404 S. Loomis Boulevard, Chicago 36, Illinois

equipment developments

(Continued)

dial range. Automatic C22 model, with $3\frac{1}{2}$ deg minimum differential and 35 deg dial range, automatically operates heat pumps with reversing valves with or without de-icer controls, two-stage units and dehumidification systems with reheat. It can control two, three or four different devices. Rotary selector switch provides up to four circuits.

Water Heaters

"COPPER CORE" automatic gas-fired water heater line in 30 gal size—Trageser Copper Works, Inc., New York International Airport (IDL) Jamaica 30, N.Y. Water touches only solid copper liner; outer tank is steel. Glass fiber insulation covers tank completely. Btu input is 52,000; recovery rate is 43.7 gph at 100 deg rise with either natural, manufactured or mixed gases. Unit is $58\frac{1}{2}$ in. high, 19 in. in diameter, weighs 195 lb.

Chimney Housing

HOUSING AND SUPPORT for use on gas-fired type B vents—Condensation Engineering Corp., 3511 W. Potomac Ave., Chicago 51, Ill. De-



signed to give more massive appearance to type B vents, housing is 19 in. square, made of 0.025 ga aluminum. Unit is available in neutral gray finish or in brick design in red, buff or white. Knocked-down unit can be cut to fit any roof pitch. It is available in 6 in. increments from

2 to 5 ft heights. Support is designed for installation flush against the ceiling.

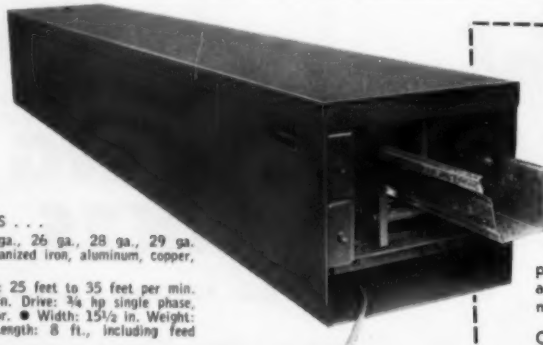
Gas, Oil Furnaces

COUNTERFLOW MODELS GBC 80-HR (gas-fired) and OBC 70-HR (oil-fired), and highboy models GBC 80-H (gas) and OBC 70-H (oil) for closet installation—Delco Appliance Div., General Motors Corp., 391 Lyell Ave., Rochester 1, N.Y. Gas-fired units have inshot burners with redesigned air tube to guide secondary air, stainless steel spreader, and flame retention ring at gas tube opening. Oil-fired models feature fuel converter, stainless steel combustion chamber, centrifugal blower powered by $1\frac{1}{6}$ hp suspended motor. Cabinets are 22 ga, with baked-on enamel finish.

Louver Doors

MODEL EH SOUND-insulating louver door which admits supply or return air to pass through without admitting

PAT.
PENDING



SPECIFICATIONS . . .

Capacities: 24 ga., 26 ga., 28 ga., 29 ga. and 30 ga. galvanized iron, aluminum, copper, stainless steel.
Maximum Speed: 25 feet to 35 feet per min.
● Height: 14 in. Drive: $\frac{3}{4}$ hp single phase, 110-220 V motor. ● Width: $15\frac{1}{2}$ in. Weight: 825 lbs. ● Length: 8 ft., including feed table.

WELTY-WAY

Continuous Type "K" Gutter Machine

Now . . . to make your service more complete, Welty-Way has developed a continuous Type "K" gutter machine. It's another Welty-Way first and will enable you to make type "K" gutters, any length, quickly in aluminum, copper, galvanized or stainless steel . . . it's simple to operate, may be mounted on a $\frac{1}{2}$ ton pickup truck or a two-wheel trailer. This machine will be an asset to your shop . . . eliminates trips back . . . keeps your men hanging gutters instead of waiting.

Check the specifications and then write us.

WELTY-WAY

Collar Attaching Machine — attaches collars to boots & fittings

A time and money saving machine to help you reduce working time considerably. In only one hour one man operating the WELTY-WAY Collar Attaching Machine will attach from 200 to 300 collars without preforming to boots and fittings of various forms ranging from 4" to 8". No preliminary crimping or beading is required and it takes approximately 10 minutes to change dies from one size collar to another.

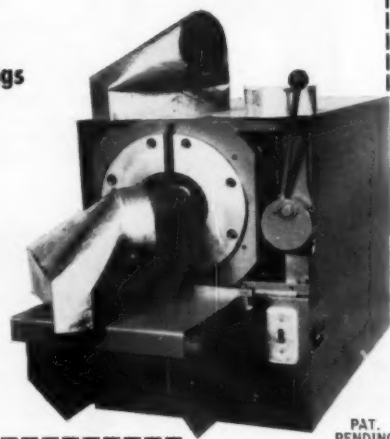
This machine expands boot or fitting, grooves both collar and boot or fitting, and attaches collar to boot all in one operation. Production output on collar attachment is increased 300-400 per cent.

WELTY-WAY Products, Inc.

714 FIRST AVE., N.W.

Manufacturers of WELTY-WAY Collar Attaching and Gutter Machines

CEDAR RAPIDS, IOWA



PAT.
PENDING

equipment developments

(Continued)

excessive noises—*Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York 17.* Hollow metal door is sup-



plied with door frame, pneumatic and aluminum adjustable gasketing and adjustable threshold sealing mechanism. Sound transmission loss is 32 decibels, said to be satisfactory for installation in a 4 in. masonry brick wall, according to the manufacturer.

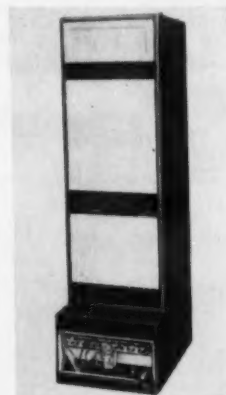
Pocket Thermometer

MODEL PT-50 POCKET TESTING thermometer in commonly-used temperature ranges, Fahrenheit or Centigrade scales—*Tel-Tru Mfg. Co., Dept. FP, 408 St. Paul St., Rochester 3, N.Y.* Unit has stem made of 18-8 stainless steel. Hard rubber pocket carrying case is included. Dial is protected by unbreakable crystal; dial diameter is 1 in.; stem is 5 in. long, 0.150 in. in diameter. Fahrenheit scale ranges are 25 to 125 F; -40 to 160 F; 0 to 220 F; 50 to 500 F.

Cooling Coils

"LUXAIRE" 36,000 AND 56,500 Btuh cooling coils for installation beneath counterflow air conditioning units—*C. A. Olsen Mfg. Co., Filbert St., Elyria, O.* Designed for use with 3 and 5 hp air cooled condensing units, coils consist of flat evaporator coils mounted horizontally and at slight angle on heavy steel frames. Suspended beneath the coils are series

of zinc-coated drainage trays to collect condensate and remove it to built-in drain pan. Units have 3-row



evaporators. Expansion valve, refrigerant drier and pipe thread drain connector are included.

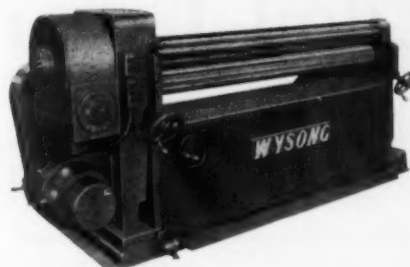
Insulation Adhesive

CA-No. 1 CLEAR adhesive for bonding blanket type insulation material to ducts—*Capac Mfg. Corp., P.O. Box 186, Capac, Mich.* No bands or

WYSONG

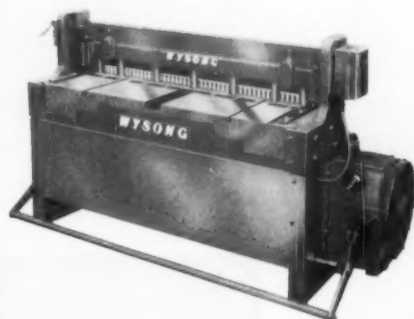
Bending Rolls AND Squaring Shears

"Buy a WYSONG . . . it's MILES ahead"



MODEL D60

Roll diameter, 6". Other models with roll diameters of 4 1/4", 5", 7" and 8". Working lengths 3 feet through 12 feet.



MODEL 1452

Capacity 14 ga. x 52". Other motor driven models with cutting lengths from 24" through 12 feet . . . capacities from 16 ga. through 1/2" mild steel.

WYSONG

WYSONG & MILES
COMPANY
615 Fulton Street
GREENSBORO, N. C.

equipment developments

(Continued)

wires are required; adhesive is said to have immediate tacking feature, long open time, good brushability and adequate heat resistance.

Room Thermostat

MODEL T500 ROOM thermostat designed to match contemporary or traditional decor—*Signet Controls*,



3205 S.E. 13th Ave., Portland 2, Ore. Contacts are made of platinum-

iridium alloy which will not oxidate or corrode; contact assembly is inside dust-proof enclosure. Adjustable anticipating heater is replaceable. Bi-metal is located toward face of unit to keep it away from "dead" air along wall surface. Tightening captive mounting screws also completes electrical connections. Painted paper or wallpaper can be affixed to front of unit.

Condensing Unit

FIVE TON CONDENSING UNIT for residences and small commercial applications, rated at 60,000 Btuh at 95 F ambient—*Caffers & Sattler Div., Utility Appliance Corp.*, 8111 W. Beverly Blvd., Los Angeles. Capacity has been increased over previous model; condensing coil, internal tubing and compressor have been improved. Single phase and three phase units are available.

Electric Shear

MODEL 200 POWER SHEAR designed to

cut 16 ga mild steel, 17 ga stainless steel—*Milwaukee Electric Tool Corp.*, 5368 W. State St., Milwaukee 8. Blade has cam-like cutting face designed to reduce blade interference; radii of



1/2 in. to the left and 1 in. to the right can be made accurately, the manufacturer reports. Full-length body bumper prevents cut material from curling and protects underside of shear. Handle is forward and low to increase control and balance. Blade adjustment is made by set screw; blade length has been increased. Unit weighs 5 lb, operates on 115-v, a-c or d-c.

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AGITAIR registers and grilles are available in a wide range of sizes and styles to meet every requirement of the architect and designer.

Available in all aluminum, stainless steel, bronze, brass, standard steel and plated finishes. Finish thoroughly baked on hard. Will not chip. When you specify these AGITAIR units, you are specifying quality items.

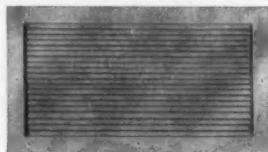


Ask your AGITAIR representative for your copy of this 32 page catalog or write to Air Devices Inc.

AIR DEVICES INC.

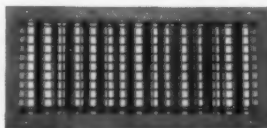
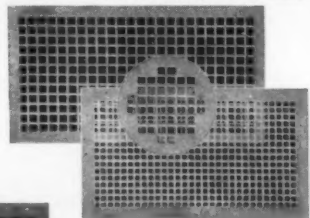
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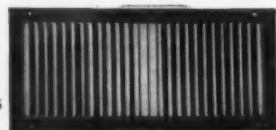


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PLAIN LATTICE GRILLES



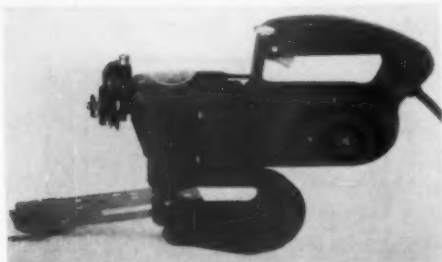
REGISTERS



GRILLES

Portable Punch Press

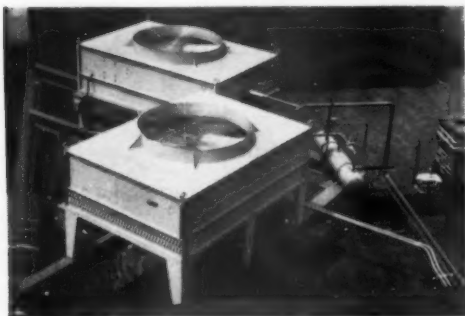
"PORTA-PRESS" 15 lb portable electric punch press designed to punch out round, square, rectangular or irregular shapes—Modern Mfg. Co., 680 Davisville Rd.,



Willow Grove, Pa. Press can be used on stainless steel, brass, plastic and other materials up to 1/8 in., the company states.

Air Cooled Condensers

ACV SERIES VERTICAL FLOW AIR COOLED condensers from 3 to 20 tons with horizontally-mounted fans and coils—Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22. "Turbu-Flo" embossed fin is designed to



add more heat exchange surface and improve heat transfer by creating improved air wash and lowering air film resistance. Fins are aluminum with die-formed collars mechanically bonded to 5/8 in. o.d. seamless copper tubing. Fans have four blades with deep pitch. Horizontal proportions are designed to lower silhouette and reduce roof loading for commercial applications.

Roof Ventilator

"WAUSAU" ROOF VENTILATOR designed for low silhouette, featuring aluminum extrusions to permit low outlet velocities—Greenheck Fan & Ventilator Corp., Schofield, Wis. Housing is weatherproof. Airstream is free from braces, cross members and other obstructions which produce turbulence and noise. Bearings are accessible for lubricating.

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Quickdraft provides industry, commerce, institutions and homebuilders *power draft* engineered for economical and efficient combustion regardless of building or atmospheric conditions. Models suitable for every heating or incinerator application . . . eliminate pulsating or chattering, puffing, smoking and sooting. Reduce building costs, no tall, unsightly stacks required. Quickdraft also provides industry with 1/4 inch to 60 inches W.G. static pressure for exhausting corrosive gases, abrasives and paint spray. Heavy-duty, high-pressure models, 6 inches to 30 inches diameter, are available for moving bulk materials or anything that can be moved by air. Because there are no motors, fans or bearings in exhaust line, only Quickdraft avoids costly clogging, corrosion of moving parts or fan failure.

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For withstanding corrosive gases, all Quickdraft units are available in standard acid resisting vitreous enamel, No. 316 Stainless Steel, rigid plastics (P.V.C.) and with plastic and Fiberglas coatings.

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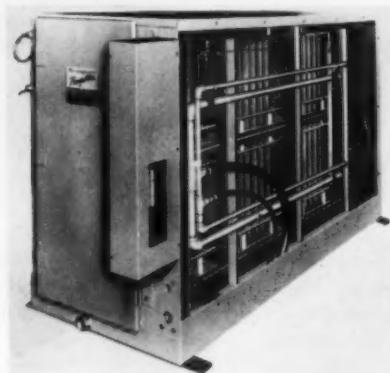


equipment developments

(Continued)

Electronic Air Cleaners

"PRECIPITRON" electronic air cleaners which can be installed as integral parts of large ventilating systems—*Westinghouse Sturtevant Div., Dept. T-262, 200 Readville St., Hyde Park, Boston 36.* Designed to



match style and dimensions of company's air distributing units, cleaners can be assembled "in-line" by bolting directly to the units. Units are designed for application at conventional coil face velocities between 350 and 600 fpm, for capacities from 1950 to 28,800 cfm. Cleaners are 25 1/2 in. deep in direction of air flow. Collector plates can be washed manually or automatically.

Gas Conversion Burners

"MONCRIEF" GAS CONVERSION burners in three sizes: 50,000 to 145,000; 50,000 to 210,000 and 100,000 to 310,000 Btuh inputs—*Henry Furnace Co.,*



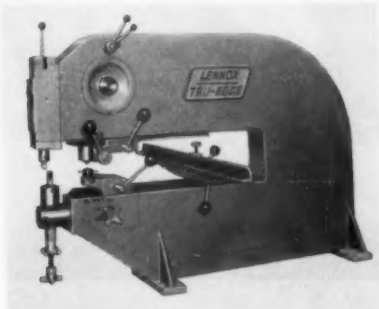
Medina, O. Redesigned burner support permits removal of cast iron burner head and tube assembly and pilot assembly without disturbing gas manifold. Secondary air shutter is designed in form of a half-circle. Flame spreader is stainless steel.

equipment developments

(Continued)

Shearing, Forming Machine

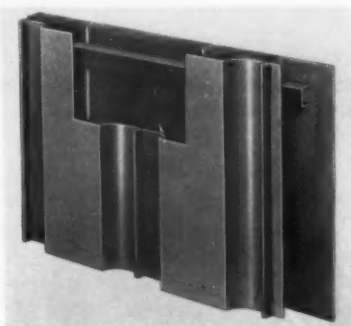
"METLMASTR" MODEL TE-100 bench model shearing and forming machine with five moving parts—Lennox Tool & Machine Builders, 651 N. Baxter, Lima, O. Unit has edge-cutting capacity up to 12 ga in mild steel, 16 ga in stainless steel. It is powered by a 1/2 hp,



110-v, single phase motor. Variable stroke length can be adjusted through its entire range without stopping motor. Unit cuts 8 to 15 ft of material per minute, at rate of 1750 through 3500 strokes per minute. Lower tool can be placed in front of, behind, or under the upper tool. Throat depth is 32 1/2 in. Unit cuts in center of sheet without starting hole; cuts inside, slots, joggles, beads, louvers, dishes, straight flanges; circle flanges and edge bends.

Curtain Wall Panels

"MILCOR" STEEL curtain wall panels for application either insulated or uninsulated—Inland Steel Products Co., 4023 W. Burnham St., Milwaukee 1. Model



EW is exterior panel only; EDW is complete wall panel component with or without insulation. Panel has deep-shadow exterior configuration with baked epoxy-resin prime finish on bonderized steel. Panels are available in 18, 20 or 22 ga bonderized steel with baked enamel prime coat; 18, 20 or 22 ga galvanized steel; and 16, 18 or 20 ga embossed aluminum. Panels are available in sheet lengths up to 28 1/2 ft.

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**HEATING
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With COMFORT CONTROL by Zone-A-Trol, Living Rooms, Bedrooms, Kitchens, and Bathrooms, may each be provided with their own thermostatically controlled heating system, and the temperature in each room may be maintained, raised or lowered to suit each occupants requirements for comfort at any hour of the day or night.

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automatically
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heat to each ROOM . .

Zone-A-Trol "Air Flo" Dampers are low voltage operated motorized dampers that may be installed in any shape or size of air ducts to automatically control the flow of heat to each room or zone. Each damper is individually controlled by a corresponding three wire thermostat located in its corresponding zone. Operating on low voltage, no BX cable is required. Dampers are wired in series and connected to the furnace controls to supply heat whenever one or more thermostats call for heat.



TYPE AL furnace limit control

Adjustable and non-adjustable. Bimetal sensing element is maintained in a completely exposed position in the air stream for fast temperature response. Temperature calibration and differential can be preset to your specifications up to 300° F. Standard factory differential is 25° F. Can be supplied with a closer or wider differential on request. Adjustable feature at no extra cost. Standard range of adjustment is 90° F. 40° F. range also available. Furnished with either 3-inch (AL-3) or 7-inch (AL-7) probe.

NEW THERM-O-DISC THERMOSTATS

for furnace fan and limit control applications



TYPE AF furnace fan control

Available with either a 3-inch (AF-3) or 7-inch (AF-7) probe which maintains the bimetal sensing element in a completely exposed position in the air stream. This rapid response position of the sensing element, combined with a snap-acting switch mechanism, provides fast and efficient furnace fan control. Adjustable with a range of 90° F. Maximum temperature 300° F. Factory differential is 25° F. Can be supplied with a closer or wider differential on request.

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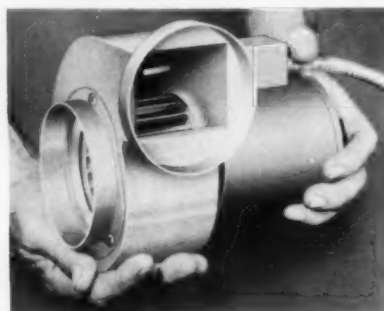
THERM-O-DISC, INCORPORATED mansfield, ohio

equipment developments

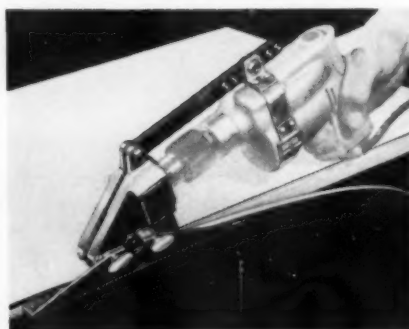
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Mechanical Draft Booster

MECHANICAL DRAFT BOOSTER to vent exhaust gases from unit heaters directly outdoors through side of building through short length of 4 in. duct—*Reznor Mfg. Co., 6 Union St., Mercer, Pa.* Unit is applicable



to residential installations. Powered by fan-cooled motor, thermostatically controlled model V300 is designed for use with heaters from 25,000 to 300,000 Btu input. Adapter is used for attaching unit to flue. Built-in restrictors control volume of gases drawn through the exchanger. Air supply at burner adjustment remains constant.



Metal, Plastic Shears

"DRACO" METAL SHEARS and plastic shears designed to cut in straight, curved or circular patterns—*Malden Research and Development Co., Inc., 1130 Main St., Malden, Boston 48.* Metal shear cuts all types of metal up to 3/64 in. Plastic shear cuts any synthetic resin and plastic laminate sheets up to 3/16 in. Attachment weighs 1 lb. Knives and blades are alloyed steel; all parts are interchangeable. Attached side guides facilitate straight-line cutting. Shears fit any electric hand drill and can be mounted in vise.

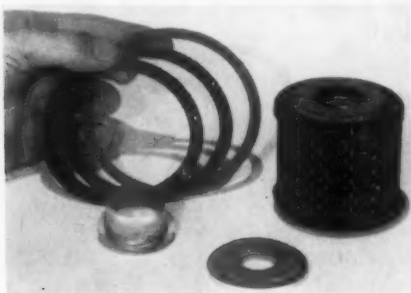
Small Unit Heater

SMALL GAS-FIRED unit heater rated at 30,000 Btu, designed for small stores, offices, classrooms and sup-

equipment developments

(Continued)

plementary heat in residences—*Carrier Corp., Carrier Pkwy., Syracuse 1, N. Y.* Low voltage transformer for thermostatic control is included; diaphragm valve is designed to eliminate starting click. Propeller fan can be activated to provide summer air circulation.



Oil Burner Filter Refills

MODELS PF-63, 65, 67 and 200 refills designed to fit most oil burners and to be interchanged with 24 standard filter elements—*Purolator Products, Inc., 970 New Brunswick Ave., Rahway, N. J.* Refills are supplied with adapter rings and extensions. Filter elements are made from resin-impregnated cellulose.

Sheet Metal Tool Line

"MERTCO" SHEET METAL seam opener, duct drive clincher, metal marker and brake mold attachment—*Overland Sheet Metal Mfg. Inc., 9550 St. Charles Rd., Overland 14, Mo.* Seam opener opens any female edge that can be made on bending brake. Standard opener wheel thickness is 0.065; thicker wheels are available for stainless or tempered steel. Duct drive clincher pulls two pieces of duct together and aligns drive cleat edges, leaving mechanic's hands free to finish connection. Metal marker makes bend marks without templates for gutters, gravel stops, valleys, flashings, S-cleats, government locks, etc. Brake mold attachment can be installed on any leaf brake to assure true radius the full length of the brake. Heavier gages can be molded than are possible by hand.

Humidistat for Kitchen Ventilators

MODEL KAH-180 HUMIDISTAT designed especially for firm's KA-170 and KA-155 kitchen ventilators—*Stewart Industries, Inc., 320 E. St. Joseph St., Indianapolis 2.* Unit has a 150 strand human hair control element; tension release device prevents hair strands from being damaged by humidity or mechanical strain. Unit is single pole, double throw, line or low voltage, a-c or d-c pilot control with snap-acting contacts to both positions.

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- "Backward curved blower wheel" type mechanism assures high, constant exhaust capacity, no backdraft ever.
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AIR CONDITIONING and refrigeration equipment catalog, 294 pages, presents current net dealer prices along with ordering instructions. Equipment specifications, dimensions and capacities are listed for heavy duty and fan motors, air filters, refrigerants, tubing, electrical testing tools, instruments, condensing units, replacement parts for compressors, refrigeration system controls, hand tools, service kits and air conditioning accessories. Copies of the catalog may be obtained from any of the wholesaler's seven branches located in Terre Haute, Ind. (41 Wabash); Mt. Vernon, Ill. (South end of 28th St.); Paducah, Ky. (910 Broadway); Memphis, Tenn. (747 Poplar St.); Birmingham, Ala. (210 18th St., S.); Huntsville, Ala. (1117 Vanderbilt Dr.); New Orleans, La. (7900 Earhart Blvd.) and at the main office—**Budlock Refrigeration Supply Co., Inc.**, 434 Carpenter St., Evansville, Ind.

Duct Fittings

THE IMPORTANCE of correctly designed fittings in a forced warm air or air conditioning installation is discussed in the second issue of "Fitting Facts" for 1959. It is pointed out that the installing contractor and the layout engineer are manufacturers — that a system is manufactured in the field and must be made up of properly sized components if it is to provide the maximum amount of comfort. Two charts are included, one showing cfm per 1000 Btuh required for various duct lengths and the other illustrating various types of fittings and giving resistance values in terms of equivalent feet of straight duct. Of particular interest is a step-by-step procedure for solving a sample problem in duct design—**Air Distribution Institute, Keith Bldg., Cleveland 15.**

Requirements for Oil-Fired Installations

THE NATIONAL FIRE PROTECTION Association's Standard No. 31 lists minimum requirements for the installation of oil burners and the equipment used in connection with them, including tanks, piping, pumps, controls and accessories. Chapter 1 gives general provisions for the installation and ventilation of oil burning equipment as well as requirements covering chimneys, smokestacks and flues, electrical wiring, and fuel oil. Chapter 2 is devoted to the design, construction and installation of tanks. Chapter 3 covers installation of fill, return, supply and vent piping. One section, titled "Installation of Conversion Oil Burners and Oil-Fired Furnaces," covers posting of instructions, controls, and requirements for specific equipment (clearances, mounting, etc. of furnaces, floor

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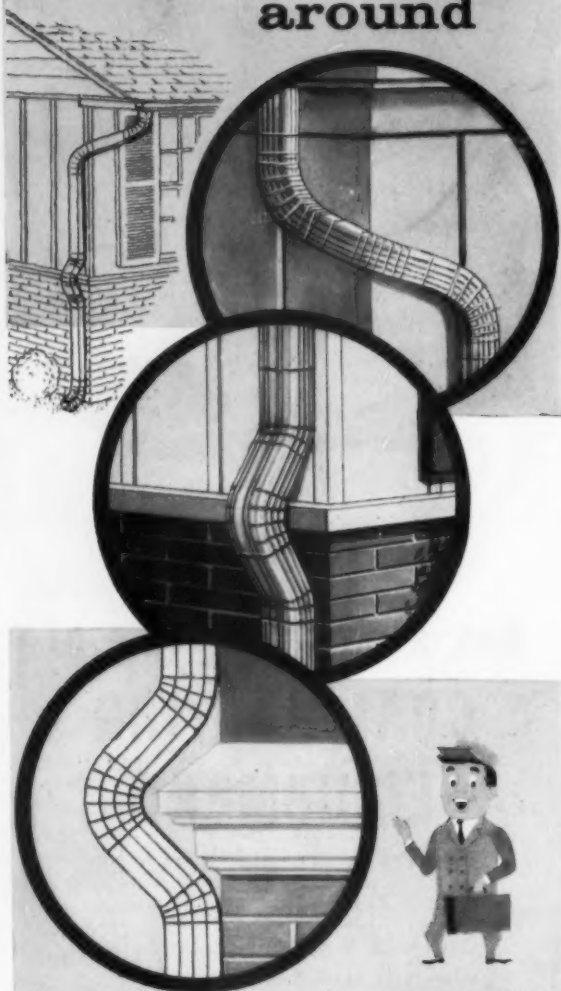
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Precision shaped and tapered on fully automatic machinery for positive uniformity, Cincinnati Elbows fit together quickly and surely on every installation. Hot-dipping after formation at controlled temperatures gives them a thick coating of zinc for a better-looking, longer-lasting quality. So give the home owner the best. Give him a galvanized, Cincinnati Elbow *not* an unfinished inferior product. Cincinnati Elbows are available in all sizes, angles and gauges in copper, aluminum, stainless or galvanized steel. Ask your jobber.



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new literature

(Continued)

mounted unit heaters and water heaters; attic, duct and floor furnaces; furnaces used with refrigeration systems; recessed heaters; and suspended unit heaters). The booklet contains 64 pages, is priced at 60 cents—*National Fire Protection Association, 60 Battery March St., Boston 10.*

Estimating Market Potentials

HANDBOOK OF AREA SAMPLING outlines techniques and procedures for estimating market potentials of local areas. Materials required to obtain proper sampling and the projection of samples to point out the existing market are described. The threefold purpose of the 64 page book is to: 1) bring together the various definitions and procedures involved in market area sampling; 2) illustrate the use of random sampling; and 3) show the adaptability of available materials to several commonly used sampling methods.

Illustrative data used pertains to a single county and the communities in the county. Methods are outlined which may be used in locating similar data for other marketing areas—*Chilton Co., Book Div., 56th and Chestnut Sts., Philadelphia 39.*

Gas Vent Pipe and Fittings

CATALOG ILLUSTRATES "Metvent" double walled pipe and fittings for venting gas-fired heating equipment and water heaters. Described are both round and oval type pipe and fittings, adapter sections, roof caps, adjustable roof flashings and storm collars. Installation instructions are included—*Hart & Cooley Mfg. Co., 500 E. Eighth St., Holland, Mich.*

Store Type Air Conditioners

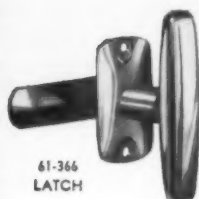
BULLETIN 8525 describes and illustrates design and construction features of store type packaged air conditioners. Capacities and physical data are presented in tabular form for both air and water cooled units—*American-Standard Industrial Div., Detroit 32, Mich.*

Heating, Air Conditioning Controls

SPECIFICATIONS AND FEATURES of automatic controls for heating, air conditioning and refrigeration applications are given in catalog R-1650 (56 pages, illustrated). New products carried for the first time include 10 models of "Silent Knight" series gas valves, a new line of small solenoid valves, electric heat controls, a two-piece oil burner control, and "Customline" fan and limit controls and room thermostats. Catalog is cross-indexed for easy location of controls by type or use—*White-Rodgers Co., 1209 Cass Ave., St. Louis.*

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FOR
METAL CABINETS
OIL BURNERS
GAS HEATING UNITS
AIR CONDITIONING
EQUIPMENT



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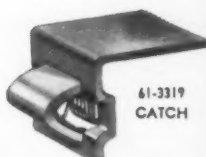
SHEET METAL
SCREWS



61-682
CATCH



61-530A
STRIKE



61-3319
CATCH

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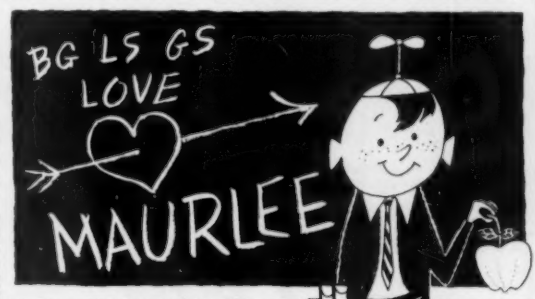


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ROCKFORD, ILLINOIS



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Maurlee offers FREE courses of instruction in

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These courses were originally instituted for Maurlee customers, but due to popular demand are now available to everyone in the industry.

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Each course is covered in less than one day. Courses are held at the Maurlee Company Plant classrooms in Woodbury Heights, N. J. on a monthly basis. If desired, Maurlee's instructors will conduct these classes at your office, plant or showroom.

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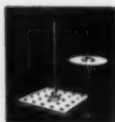


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No faster, surer, safer way to install insulation on the interior and exterior of metal ducts.



Use Spackle Anchors for bonding fibrous glass batts, mineral wool, to ducts, walls, ceilings. Lock weather batts insulation firmly in place.



Use Pronged Anchors for bonding block insulation such as cellular glass. Pronged Anchors are set between rows of blocks and then grout is laid over.

FREE

Send today for Mira Data Sheet #2, 4 page two color brochure which completely describes this application.

MIRACLE SURFACE ANCHORS
are manufactured by
DEVICES • Division of
MIRACLE ADHESIVES CORP.



250 Pettit Avenue
Bellmore, Long Island, New York

JUST AMAZING!
THE TIME AND COST SAVINGS
ACHIEVED WITH
MIRACLE SURFACE ANCHORS
AND MIRACLE ADHESIVES



new literature

(Continued)

Modulating Blower Control

THE OPERATION of "Palm Beach" modulating blower control is explained in form 700 (four pages). According to the company, the control stops drafts, eliminates noise, results in lower fuel bills, provides even temperatures and promotes longer furnace life. The bulletin is illustrated with an exploded view to explain the mechanics of operation—*National Modulation Co., 2720 N. Highway 61, St. Paul 9, Minn.*

Makeup Air Systems

BULLETIN EN-5911 describes how makeup air properly introduced and tempered will overcome negative air pressure which creates uncomfortable drafts, reverses air flow in flue, and adds to the load on the heating system. Included are instructions for designing a makeup air system and a schematic diagram showing a recommended control arrangement for makeup air installations—*Reznor Mfg. Co., 6 Union St., Mercer, Pa.*

Dust Control Equipment

DUST CONTROL LITERATURE shows how one or a combination of eight cyclone separators can protect machinery investment, product quality, and employee health. Included are multiple rating tables, specifications and a dimensional drawing—*Torit Mfg. Co., Dept. KP-1, Walnut and Exchange Sts., St. Paul, Minn.*

Portable Nibblers

PORTABLE ELECTRIC AND PNEUMATIC nibblers said to reduce metal cutting time 75 percent are described and illustrated in a four page, three color circular. According to the company, nibblers are capable of cutting up to 10 gage stainless or 8 gage mild steel without distortion—*Fenway Machine Co., Inc., 3107 N. Broad St., Philadelphia 32.*

Tube Fittings

CATALOG ON TUBE FITTINGS is illustrated with photographs, cutaway views and line drawings. Ordering information and specifications are included—*Lenz Co., Dept. 7-A, 3301 Klepinger Rd., Dayton 16, O.*

Arc Welding

"WHICH WELDING POWER SOURCE Should You Use?" serves as a guide to the proper selection of arc welders for use with stick electrode, gas shielded tungsten-arc or gas shielded metal-arc welding processes. Illus-

LITTLE GIANT PUMPS

- Low pickup—no priming needed
- Economical operation
- Volume can be controlled for maximum effectiveness
- Corrosion resistant

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PUMP COMPANY**
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New Home of
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Tripled Production Capacity
to Meet Increasing Demand.

Easily Installed LITTLE GIANT Units MEAN MORE PROFIT FROM YOUR REPLACEMENT MARKET

Little Giant Pumps can mean more profits for you. In applications where space is limited and low pick-up, high volume is required, Little Giant Pumps are the answer . . . and they can be installed in a matter of minutes. Write for our catalog, today!

2-SPB SCREENED BOX PUMP

Little Giant screened box pump is economically priced . . . available with either automatic or manual switch. Long service . . . low operating cost.

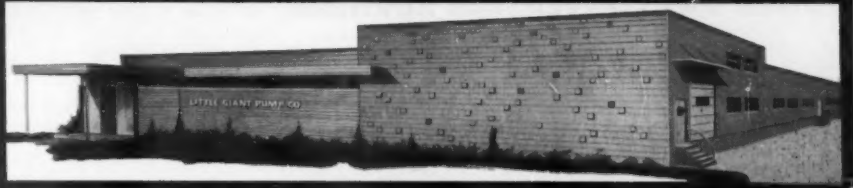
CAT. NOS.
2-SPB, 2-SP,
3-SP



2-HBK HUMIDIFIER

Automatically controlled humidifier is for central heating installations. Little Giant is most effective, efficient and trouble-free. No jets or nozzles. 110 V, 60 cycle humidifier is easily installed, silent in operation.

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2-HK



PROOF that all Baseboard Diffusers are not alike



the
NEW
P-68

New P-68 with
28 square inches of free area



Length 18"
Stackhead Sizes:
2 1/4 x 12
2 1/4 x 14

Visioned to answer today's huge demand for a shorter, more efficient baseboard diffuser, P-68 with 28 square inches of free air space is taking the lead!

P-68 offers considerable savings in time and labor costs because the installation is so simple . . . yet in operation it compares to other diffusers UP TO THREE TIMES ITS SIZE. The P-68 delivers a perfect diffusion pattern . . . a soft, gentle fan of air . . . ideal for heating or cooling. Highly attractive design and smooth modern lines blend with any baseboard style in new or remodeled homes.

Write for the complete A & A catalog showing our full line of registers, diffusers and grilles for every type of heating and air conditioning installation.

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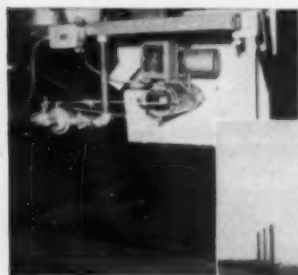
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LO-BLAST ECONOMITE

POWER GAS CONVERSION BURNERS



Economite supplies heat for cooking as well as comfort on this converted range in hospital kitchen.



Feeder line crossing Nerrovik lagoon is cable-suspended.

Thirteen Economites and seven Dual Fuel Lo-BLAST Burners burn natural gas with trouble-free dependability to heat personnel housing, offices, warehouses, hospital, school and other buildings in the U.S. Weather Bureau Station, Barrow, Alaska.

Economite adds a bonus of *savings* over and above its dependability—averages 10% lower operating cost. Controlling primary and secondary air perfectly, it functions independently of variable natural drafts—is especially well-suited for down-draft boilers. Combustion is completed in an incandescent firebox, with radiant heat applied to crown sheet and side walls. Other features: soft, quiet-flame...standard controls with positive acting pilot and blower safetys...sturdy, fool-proof design...easy to install because completely assembled and factory-tested on gas.

Lo-BLAST Power Gas Burners are available in 70,000 to 20,000,000 B.T.U. input capacities. Write for literature.

(Use of this product by a U.S. Government Bureau in no way constitutes an endorsement of the product by the Government.)

**MID-CONTINENT
METAL PRODUCTS CO.**
1960 N. Clybourn Ave., Chicago 14, Ill.

new literature

(Continued)

trated with 14 schematic drawings, the booklet details eight specific steps to be taken into account when choosing one of the basic types of power sources: 1) location of the operation; 2) job and process requirements; 3) type of current; 4) machine characteristics; 5) auxiliary devices in the power source; 6) welding power; 7) welding duty cycle; and 8) shop power supply voltage. Ask for form ADR 121—*Air Reduction Sales Co., Div. of Air Reduction Co., Inc., 150 E. 42nd St., New York 17.*

Draft Control

DRAFT CONTROL HANDBOOK, "How to Cure Sick Chimneys," explains the importance of proper draft and describes the causes of chimney failures. According to the company, "Shur-Flo" draft inducers—designed to provide additional draft when natural draft is not sufficient for satisfactory operation—will correct most draft problems in fuel burning heating equipment. The device is also said to prevent excessive draft which could result in too much combustion air with a loss in fuel economy. Selection information is included—*The Walker Mfg. and Sales Corp., 1717 Penn St., St. Joseph, Mo.*

Oil-Fired Furnaces

TWO-PAGE DATA SHEET illustrates "OFB 85" gun type floor furnace. Specifications and product feature descriptions are included. Also available is a price list for horizontal, highboy, lowboy and counterflow oil-fired warm air furnaces—*Federal Heating & Cooling Corp., 126 W. Tremont Ave., P. O. Box 3347, Charlotte 3, N. C.*

Preform Soldering

"A GUIDE TO PREFORM SOLDERING" (eight pages) presents information on solder preforms and their use. Included is data on shapes and alloys available, heating methods, flux selection, metal characteristics and alloy selection. Solder reference data includes a tin-lead fusion diagram and charts listing the physical properties and melting points of tin-lead, commercial silver and indium base solders—*Alloys Unlimited, Inc., 21-01 43rd Ave., Long Island City 1, N. Y.*

Oil Heating

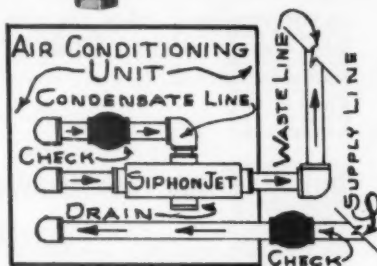
CONSUMER LEAFLET asks the question, "Are you burdened with high priced heat?", and urges the home owner to stop putting up with high heating bills and change to a modern oil heating system. Ask for leaflet OHI 7065—*Oil Heat Institute of America, Inc., 500 Fifth Ave., New York 36.*

... a new concept in Condensate Pumping



LOW IN COST
NON ELECTRICAL
NO MAINTENANCE
SELF CLEANING...

eliminate use of electric
condensate pumps.



WITH THE ALL NEW CONDENSATE SIPHON JET

Can be used on any air conditioning system which is water cooled.

Has a suction up to 30" and a head up to 30 feet, at two gallons of condensate per minute.

For long runs of gravity condensate water lines, it would be much less expensive to use a condensate siphon jet because it eliminates the use of material and labor for a separate condensate return line.

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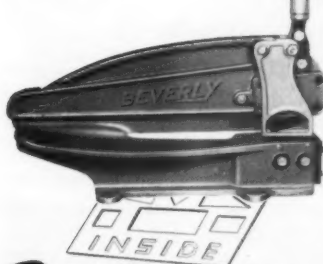
CONDENSATE SIPHON JET CORPORATION

57 LAWTON STREET

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BEVERLY SHEARS SAVE TIME · LABOR · MATERIAL

Make any cut—curved, straight or irregular, faster, easier and better with less material waste on a Beverly Throatless Shear. You can turn work to any position and make a clean cut as you go. Handles heavy gauges with ease—lighter metals without distortion. 4 models—capacities 18 gauge to $\frac{3}{16}$ " mild.



INSIDE SLOTTING 8" Reach—16 ga. capacity

Makes inside slotting cutting faster, easier, cleaner. Punch and die arrangement of 5 blades assures accuracy, clean cutting action. Cuts $2\frac{1}{2}$ " x $\frac{1}{8}$ " or $2\frac{1}{2}$ " x $\frac{1}{16}$ " slot at one stroke. Throat design permits pivoting work at any point in stroke for special inside cuts. Note sample cuts at left.

See your Beverly Dealer or write for illustrated catalog.

Beverly SHEAR MFG. CO.
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Smith's 180° plus

SHEET METAL BENDING BRAKE

Bends Sheet Metal ALL THE WAY OVER AGAINST ITSELF Without Re-positioning the Workpiece



Smith's Sheet Metal Bending Brake is a ruggedly built production tool, capable of making almost any desired bend quickly, easily, and accurately. When required, hold-down mandrel segments may be removed to permit bending box sections, etc. Bends made on a Smith's Brake are always straight because bending force is applied up through the edge of the mandrel blade—not against its side. Thin section of mandrel segments permits getting into corners, slots, or crevices too tight for any other equipment.

Made in 3 Models: Capacities of 14, 16 and 20 ga. and bending widths up to 48".

Write for descriptive catalog and complete information.



Forms Boxes with inward or outward turned flanges



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For EASIER HANDLING

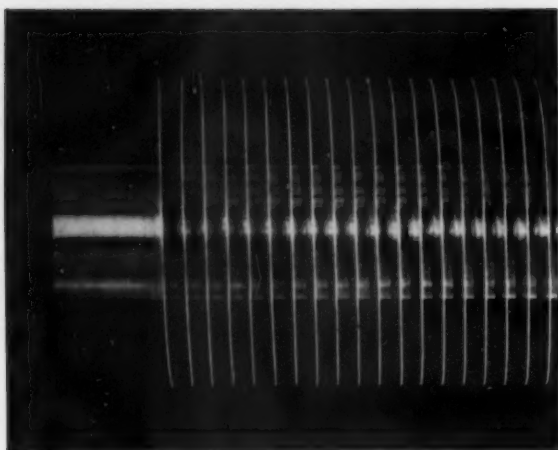
All MONCRIEF galvanized Pipe and Fittings are Carton Packed for greater convenience in handling and shipping. This feature alone saves time and money in that it eliminates the replacement of parts that usually get damaged through handling or while in storage. MONCRIEF standardized Fittings are precision made, at low mass production cost. All uniform in size and quality. All easy to store, Easy to assemble. Order from your wholesaler today.

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MONCRIEF FURNACE COMPANY

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AEROFIN **Smooth-Fin Coils** **offer you**

Greater Heat Transfer
per sq. ft. of face area

Lower Airway
Resistance

—less power per c.f.m.

Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



Write for Bulletin 5-55

AEROFIN
CORPORATION

101 Greenway Ave., Syracuse 3, N.Y.

Aerofin is sold only by manufacturers of fan system apparatus. List on request.

new literature

(Continued)

Rubber Bonded Abrasives

CIRCULAR covers rubber bonded abrasives for polishing and finishing operations. Abrasives can be used with standard precision or offhand grinding equipment such as portable drills, bench and floor grinders, tool post grinders, lathes and drill presses, the company states. Ordering information is included—*The Carborundum Co., Bonded Abrasives Div., Niagara Falls, N. Y.*

Ducts for High Velocity Systems

INFORMATION ON "SPIRA-PIPE" round metal ducts for high velocity, high pressure air conditioning systems is presented in Catalog No. 35-8. Ducts are available in any diameter from 3 to 24 inches. Also described and illustrated are die-formed elbows for 45 and 90 deg turns available in six sizes from 3 to 8 in. in diameter and flexible connectors ranging from 3 to 24 in. in diameter—*Carrier Corp., Carrier Parkway, Syracuse 1, N. Y.*

Brazing Equipment

HOW TO USE "Rexarc Liquifluxers" and "Liquiflux" for brazing of all metals is explained in a four page, illustrated folder. According to the manufacturer, no special torch, no precleaning and no after cleaning are required—*The Sight Feed Generator Co., West Alexandria, O.*

Shock and Vibration Isolators

BULLETIN 59-04 explains what isolators are, how vibration is minimized by isolators, and how to select the right isolator for specific applications. According to the company, use of the isolators lengthens equipment life, decreases maintenance cost, improves product performance and increases employee efficiency—*Barry Controls Inc., 700 Pleasant St., Watertown 72, Mass.*

Heating, Cooling Equipment

THREE BROCHURES, punched for catalog insertion, cover: 1) year 'round air conditioners; 2) gas-fired winter air conditioners; and 3) oil-fired winter air conditioners. Covers are printed in full color and inside text is illustrated with large cutaway equipment photos to aid dealer-contractors in explaining operating features. A total of 10 brochures in the new format have been planned—*Janitrol Heating and Air Conditioning Div., Surface Combustion Corp., Columbus 16, O.*

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*when buying decisions
are made . . .*

*sources of supply
investigated*

START YOUR PLANNING NOW
FOR ADEQUATE SPACE IN

AMERICAN ARTISAN'S

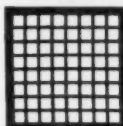
BIG JANUARY 1960

DIRECTORY and SHOW NUMBER

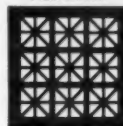
**DECORATIVE
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... for Ventilation
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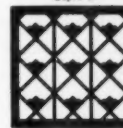
H & K Perforated Metals



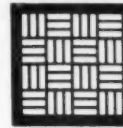
Plain Lattice



Style L



Style HK720



Style HK111

Perforated Metal Grilles can be ordered from the wide selection of patterns available at H & K. Classic or modern design—grilles are made to your exact specifications, in kind of metal, thickness of metal, size, shape, finish and margins. Send for Grille Catalog.

Decorative Perforated Metal Sheets (in lighter gauge steel) are carried in stock for prompt shipment from H & K warehouses. Send for H & K Stock List Brochure, with illustrations and specifications of patterns in stock.

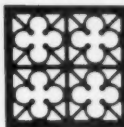
For information about all H & K perforated metals, including louvers (fixed and lip slot), send for H & K General Catalog No. 75.

**THE
Harrington & King
PERFORATING CO. INC.**

Chicago Office and Warehouse
5649 Fillmore St., Chicago 44, Ill.

New York Office and Warehouse
114 Liberty St., Dept. AA, New York 6

Just a few of the many H&K patterns are illustrated—in reduced size.



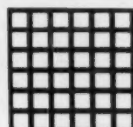
Style U



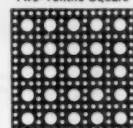
Listed Under
"Perforated Metals"



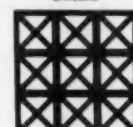
9/32" x 1-27/32" Slot



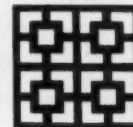
Two-Tenths Square



Lincane



Perlex



Style A-1

**BLOW PIPE
PARTS**

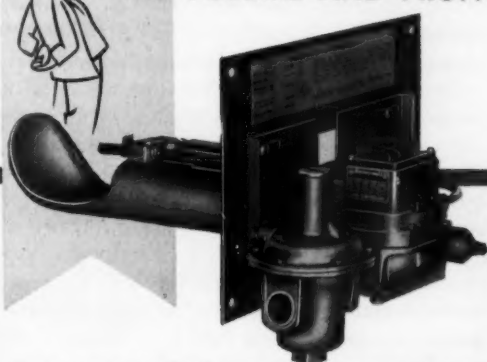
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**SELL AND INSTALL THE UNSURPASSED
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by BANNER BURNER**

- Flawless Design and Construction.
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- M. H. Controls, Available in Powerpile or 24-Volt System.
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Install CONNOR RESIDENTIAL AIR DIFFUSERS...



CONTRACTORS CHOOSE CONNOR Kno-draft Residential Air Diffusers for their superior performance and quick, easy, low cost installation.

Using Connor units, there's no time wasted with pre-assembly or separate installation of diffuser's elements because Connor builds the **damper** and **smudge cone** right into the diffuser! No separate **mounting ring** or **plaster ring** required. Just a few simple turns of a screwdriver, and the job's done!

Profit *more* by spending *less* time on jobs—choose Connor Kno-draft Air Diffusers, the most forward-reaching, efficient advance in the residential air conditioning field . . . balanced air distribution . . . better air circulation . . . easy, low cost installation . . . quick control.

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CONNOR... for Constant Comfort Conditions

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residential air diffusers

DANBURY, CONNECTICUT

we hear that...



ED DOLMOVICH (right) discusses features of "Al-clad" gutter with (l to r) Charles R. Fontaine, Fred J. Engler and Jerry D. Green

► MORE THAN 150 SHEET METAL MEN turned out for Aluminum Company of America's first rain-carrying equipment clinic held recently in Milwaukee. Purpose of the meeting was to acquaint Milwaukee area sheet metal men with the company's "Alclad" gutter system. The meeting was sponsored by the firm in cooperation with its Milwaukee distributors, Milwaukee Stove and Furnace Supply Co. and Wisconsin Bridge and Iron Co. A 21-minute movie was shown to illustrate how a typical job is processed from shop fabrication to completed installation.



DREIS & KRUMP MFG. CO.'S new addition will be used for machining and assembly of large mechanical press brakes and hydraulic press brakes

► DREIS & KRUMP MFG. CO. has started operations at its new factory addition in Chicago. The building houses two large horizontal boring machines and two wide-table, high-speed planers. At one end is a complete welding area.

► TWENTY-ONE GRADUATES of U.S. and Canadian colleges and universities recently completed The Trane Co.'s specialized engineering program. Two postgraduate courses are conducted each year at the firm's home offices in La Crosse, Wis. Applications of engineering principles are presented to give the graduate the specialized training he will need for his place in the air conditioning and heating industry.

MAKE A SLOW JOB FAST AND EASY!

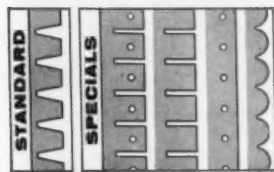


With a Ruoff Notcher you can notch flat or curved sheet metal at speeds up to 18 feet per minute. Automatic feed and depth of notch are adjustable.

Ten times as fast as hand cutting! Time for measuring and layout eliminated!

Notches up to 21 gauge sheet with 1/4 hp — 110 volt motor, up to 16 gauge with larger motor.

Ruoff Notchers are supplied complete with floor stand. Just plug it in and you are ready to go. Immediate delivery.



Write to Ruoff & Sons, Inc., Bellmawr 4, N.J., for complete specifications. In Canada: Brown Boggs Foundry and Machine Co., Ltd., Hamilton Ontario.

Distributors: Franchise available in some areas.
WRITE TODAY

RUOFF
NOTCHER
CUTS
PRODUCTION
COSTS

Whether you are installing a simple warm-air heating job or the most modern air conditioning job,

**HANDY
PIPE**

And Duct Work will help you keep costs down and outlast the building itself.

*F. Meyer & Bro Co
Peoria Illinois*





WORLD'S LARGEST
MANUFACTURER OF
ONE-PIECE
STAMPED
PULLEYS

Long the favorite with Original Equipment Manufacturers of Automobiles, Heating and Air Conditioning Equipment.

**THEY COST
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Because they are made in ONE-PIECE
ZATKO ONE-PIECE PULLEYS—
Are Stronger, wear longer and cost
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in securing
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We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential and small building heating, air conditioning and sheet metal products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

AMERICAN ARTISAN

**6 North Michigan Avenue
Chicago 2, Illinois**

we hear that

(Continued)



DISTINGUISHED SALESMAN'S AWARD, the highest honor that can be earned by a salesman, has been won by Lou Reining, Chicago manufacturers' representative

► **LOU REINING**, Elwell-Reining Co., Chicago representative for the Brundage Co., Automatic Humidifier Co. and Connor Engineering Corp., recently received the Distinguished Salesman's Award from the National Sales Club of America. This is reported to be the first time such recognition has been accorded a member of the warm air heating and air conditioning industry. The award carries this engraved message: "Having attained general excellence in the selling profession through diligent efforts in applying fine attitude, skill and knowledge, Lou Reining is hereby cited as a distinguished salesman."

Mr. Reining was among six salesmen receiving recognition from the Kalamazoo Sales Executives Club. The other recipients represented other industries.

A trophy and plaque go with the award, called by salesmen "the Pulitzer Prize for sales efforts and achievement." It is based on the principle that "better selling comes from better recognition and more highly honored selling effort."

Nomination for the award was made by F. Ward Brundage and L. C. Kroes, president and sales manager, respectively, Brundage Co.

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"This galvanized sheet first choice by far!"

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1. sofTITE Cop-R-Loy Sheets are far more workable.
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3. The special Cop-R-Loy steel base lasts far longer.

Get the complete story on dependable, easy-to-work sofTITE Cop-R-Loy Galvanized Steel Sheets from your nearby Wheeling representative. Or write to Wheeling Corrugating Company, Wheeling, West Virginia.

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- Self Aligning
- Non-Binding

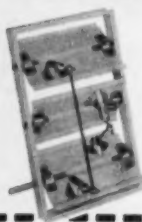
the **NEWEST**
CONCEPT
in **DAMPER**
HARDWARE



For the
Manufacture of
Multi-Blade
Dampers

ELGEN'S BALL-O-MATIC

PAT. PENDING

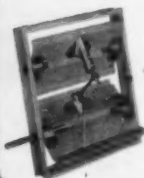


For the first time...absolutely self-aligning
(and non-binding) Damper Hardware!
Streamlined Heavy-gauge tubular design with
solid brass ball-jointed rod holder is held
in predetermined position by powerful lifetime
stainless steel spring. Exclusive positioning
marks by Elgen offer fast, easy installation.

OPPO-MATIC

PAT. PENDING

For Positive Locking Action on
Opposed Blade Dampers



A revolutionary development in Damper
Hardware! New "Microset Plate" and
companion bracket added to BALL-O-MATIC
ends over-riding and fluttering...
eliminates all other stops!



ELGEN

ELGEN MANUFACTURING CORP.
32-49 Gale Ave., Long Island City 1, N. Y.

SILENT DUCT • VANE RUNNERS • LOUVER RUNNERS • FABRIDUCT
DAMPER HARDWARE • INSULATION ADHESIVE • DUCT TAPE

Don't wait...
Write to Elgen for
FREE Brochure
and construction
detail chart!



we hear that

(Continued)

► "MOTORS IN THE MAKING," a 16 mm sound color movie, has been released by Wagner Electric Corp. The film shows the processes in the manufacture of electric motors including frame fabrication, stator winding, rotor casing and winding, assembly, testing and packing for shipment. Running time is 31 minutes. The film may be borrowed free of charge for showing to educational, industrial, commercial and engineering groups.

► JOSEPH T. RYERSON & SON, INC., Buffalo, N. Y. is now stocking and selling Reynolds aluminum in addition to its service on steel. Reynolds aluminum has also been added to the Ryerson firm's stocks at Detroit and San Francisco.

► WESTINGHOUSE ELECTRIC CORP.'s air conditioning division recently completed a series of factory service schools for employees of its distributor and dealer-contractor organizations. The one-week courses cover installation, operation and maintenance of residential, packaged commercial and applied equipment. Facilities at the Staunton plant include a classroom for lectures, equipped with visual aids, and a service workshop where representative models of packaged cooling and heating products are installed and operating. Here actual service conditions and maintenance operations can be simulated.

► A CONTINUOUS COATING UNIT for the production of zinc coated sheets is being built for the Middletown Works of Armco Steel Corp. The new 565 ft long production line will practically double the Middletown Works' capacity to produce coated grades of sheet and strip, according to Clyde G. Davies, vice president, operations, Armco Div. Mr. Davies estimated that the unit would be in operation by the end of 1960.

► McMINNVILLE, TENN., has been selected as the site for a new motor plant to be built by Century Electric Co.



Announcing

A COMPLETE NEW LINE OF

SHAFCONAIRE

SUSPENDED GAS FIRED FURNACES

priced to give you a competitive advantage in the commercial and industrial heating markets!

Another "First" for Shafconaire! A new line of suspended gas-fired furnaces designed *right built right* for commercial-industrial use—and *priced right*, too, to give you profitable, volume sales! For these new Shafconaires actually cost less than any other type of gas heating equipment of equal capacity on the market today. What's more, they're covered by all required approvals for immediate installation.



**4 OUTSTANDING FEATURES
for Profitable Volume Sales**

- **Power Burner**—provides closer control of gases through heat exchanger—gives greater heating efficiency and lower heating costs.
- **Large Capacity**—designed to handle greater volume of warm air at higher velocity—can be easily connected to duct work to provide controlled distribution of heat.
- **Maximum Head Room**—approved for installation two inches from combustible materials, compactly designed to assure greater clearance.
- **Versatility**—quickly, easily adapted in the field for right hand or left hand installation.

AVAILABLE IN 6 BASIC MODELS TO GIVE YOU BROAD MARKET COVERAGE
85,000 — 97,000 — 112,000 — 142,000 — 182,000 — 252,000 BTU Output

In addition to these six basic models, Shafconaire Gas-Fired Furnaces can also be supplied for duct heater applications. All models are furnished complete with power burner, blower, controls and with or without filters as desired.

SHAFCONAIRE—the Specified Line for '59! More national chain organizations have specified Shafconaire this year than ever before. So get your share of this profitable "pre-sold" volume—send coupon today for specifications and prices on the entire line of Shafconaire Suspended Furnaces.

OverHead Heaters, Inc.

Executive Offices: 1612 Book Bldg. • Detroit 26, Mich. • WD 2-4647
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20 years exclusive experience in
the design and manufacture of
suspended heating equipment



OVERHEAD HEATERS, INC. • 1612 Book Bldg. • Detroit 26, Michigan

Please send complete specifications and price information on your entire line of Shafconaire Suspended Gas-Fired and Oil-Fired Furnaces.

We are ☐ CONTRACTORS ☐ JOBBERS ☐ DISTRIBUTORS

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



THE WORLD'S LEADING FURNACE CLEANER

YOU CAN DEPEND ON PULLMAN

cleans all gas, coal or wood-burn furnaces - cleans floor
and ranges - hot heat gas stoves - dust work - air filters
appliance fans - gas and electric refrigerator fans - con-
densed coils - water pump springs - combustion chamber of
water heaters - gas flame regulators - cleans dust off new piping

PULLMAN PROFESSIONAL KIT FOR EVERY JOB

1. Vacuum
2. 2 1/2\"/>

ON CALL AT YOUR ADDRESS. WRITE FOR LITERATURE.

Pullman VACUUM CLEANER

wholesaler doings...



THE NORTHAMERICAN Heating and Airconditioning Wholesalers Association was well represented at the wholesale management executive course. Included in the group are (seated, l to r) Donald E. Squire, Squire Heating Supply Co., Columbus, O.; Leonard H. Troeller, Brauer Supply Co., St. Louis; Dale Cobble, G. W. Berkheimer Co., Gary, Ind.; and R. J. Kudla, Tiffin Art Metal Co., Tiffin, O. Standing (l to r) are: Michael Strilich, G. W. Berkheimer Co., Chicago; Harry Hurt, G. W. Berkheimer Co., Indianapolis; Dan Roosa, Robertson Heating Supply Co., Zanesville, O.; Roland Laughlin, Robertson Heating Supply Co., Youngstown, O.; Richard W. Koch, Waterloo Metal & Mfg. Co., Waterloo, Ia.; and N. Lacher, Robertson Heating Supply Co., Steubenville, O.

► SEVENTY-FIVE WHOLESALE EXECUTIVES, representing 16 major wholesale groups, recently received certificates for completing the eighth annual wholesale executive management course held at Ohio State University under the sponsorship of the National Association of Wholesalers. This year's class, the largest in the association's history, was attended by wholesalers from 25 states and the District of Columbia. Subjects covered included Principles of Modern Leadership, Labor Management and Human Relations, Particulars of Insurance, Stock Turnover and Control, Small Order Problems, and Budget Controls.

► J. W. SHRANK has been appointed district sales manager for eastern Michigan by Grand Furnace Co., Grand Rapids heating and air conditioning wholesaler. Mr. Shrank will live in Lansing and will cover six counties in the eastern area.

► JACK J. TYSON has been appointed executive vice president and sales manager of the F. J. Evans Engineering Co., Birmingham, Ala. Mr. Tyson was formerly vice president in charge of the company's Atlantic division. In his new position he will direct sales activities in the nine southern states covered by the company.

► JAMES ALLEN has been appointed a vice president of Sid Harvey of Reading, Inc., Allentown, Pa. Mr. Allen, 27, is one of the youngest executives in the organization. He joined the firm in 1952.

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It's A "Snap" To Install...

GALVAN ELBOWS

THE BEST ELBOWS

UNDER ANY ROOF!

GALVAN

MANUFACTURING
COMPANY

BOX 267

NEW ALBANY,
INDIANA

... ask your jobber
to supply you with

- GALVAN ELBOWS
- GALVAN CUT OFFS
- GALVAN FUNNELS

... all hot dipped galvanized
after formation



All Sizes



All Metals
All Gauges

ASSURES TIGHTEST POSSIBLE SOLDERED SEAMS

- ... without any acids
- ... without any cleaning
- ... use 50-50 or 95-5 or other
soft solders with equal assurance



With LA-CO Flux you can be sure of sound, leak-free soldered jobs every time. Its modern formulation clears the way for a perfect alloying of solder and metal . . . and stretches your solder dollars too.

LA-CO Flux makes physical cleaning and sanding old-fashioned. All the muscle is built right in, yet it costs no more. It works right through metal oxides, oil and grease — definitely fluxes right through the chemical treatment coating on galvanized metals.

Yet, with all this self-cleaning power, LA-CO Flux is completely free of acids. It will not stain metals or injure workers . . . is safe for use with foodstuffs, oxygen lines, etc. LA-CO Flux (Regular) is used for soft soldering of copper, lead, galvanized iron, tin, zinc and other common metals. See for Yourself! Hack-saw a LA-CO Fluxed soldered job in half and see the perfect bond. Write on company letter-head for sample of LA-CO Regular Flux (Liquid).

There are other LA-CO Fluxes for all specialized needs . . . in liquid, paste or handy stick form. Flux problems: Let our laboratories help; no obligation, of course.

The Lake Chemical Co., 3072 W. Carroll Ave., Chicago 12, Ill.

E-Z-ONS

E-Z-ON
STANDARD
DESIGN
No. 27

**Do a
Better Job
At a Lower Cost**

Now, it actually costs you less to get a better
engineered E-Z-ON damper regulator.

- Here's Proof:
- Lower Price . . . Means Lower Cost to You
 - Double Prongs Mean Double-Grip . . . No chance of swiveling
 - Washer is Permanently Attached . . . No loose washer to drop or fall in pipe
 - Modern "Swept" Wing Nut is Eye-appealing
 - ... Adds new beauty to installations • Balanced Construction . . . Prevents possible binding of damper in duct.

M. A. GERETT CORP.

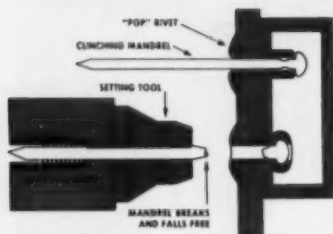
724 W. Winnieboro St., Milwaukee 5, Wis.
all leading jobbers stock E-Z-ON
Stocked in Canada by: THERMIDARE CORP., 79 Cumberland St., Toronto

"POP" RIVETS

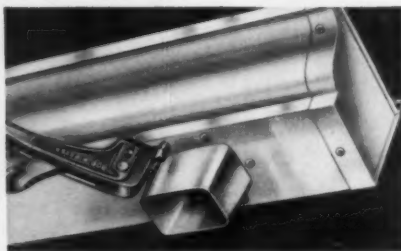


Install from outside of ducts, blower housings, refrigerator cabinets, showcases, truck or trailer bodies. Get speed, convenience and better appearance at the same time.

- **Terrific time saver for fastening ducts, gutters, signs, roofs, vents, and metal enclosures**
- **Installed and set from the same side**



HOW THEY WORK: "POP" Rivets are hollow rivets assembled on a precision high-tensile mandrel. The mandrel head is drawn into the reverse side of the rivet from the front with a setting tool. Mandrel breaks under tension.



QUICK FASTENING of aluminum downspout with "POP" Rivets. Also fasten butt ends of gutters, eave tubes, and caps, supports, siding, awnings, jalousies, etc.

No other fastener equals the speed and convenience of "POP" Rivets! Sheet metal shops are cutting their fastening time over 50%, and getting a better job at the same time. Low cost setting plier is the only tool needed.

Use "POP" Rivets either in the shop or on the job with the same convenience. Merely drill or pierce a hole, insert the "POP" Rivet and set it from the same side. Perfect for fastening ducts from one side without worrying about fastener stripping or trying to assemble a fastener from 2 sides. Works on sheets as thin as .020 dead soft aluminum without distortion.

Join other sheet metal shops in cutting fastening time. Thousands of users have told us that "POP" Rivets are the greatest fastener ever developed for saving time, improving quality, and for outright convenience. Call or write us today for sizes, prices and the name of your nearest supplier.

"POP" RIVET DIVISION
UNITED SHOE MACHINERY CORPORATION
SHELTON, CONNECTICUT
Regent 5-3391

US 9-48



merchandising ideas

► THE "BELL RINGER" direct mail campaign developed by General Electric Co.'s air conditioning department at Tyler, Tex., is designed to boost furnace sales. The campaign consists of three mailings, all carrying the dealer-contractor's imprint and featuring reply cards returnable to him. The mailings offer 1) an efficiency check (which puts the dealer-contractor inside the home at the prospect's request), and 2) a booklet of helpful heating information for people whose furnaces are more than five years old. (Requesting this automatically identifies a prospect as one whose equipment may need replacing.)

► **MASTERCRAFT INDUSTRIES INC.** offers wholesalers a series of five promotional stuffers on "Sootmaster" furnace vacuum cleaners and accessories. Three of the folders cover Models 581, 521 and 521-8 furnace vacuum cleaners, a fourth describes the "Sootmaster" filter unit with disposable paper filter bags, and the other illustrates accessories to fit various types of industrial vacuum cleaners.

► **FULL-COLOR SELF-MAILER** which opens into a 23 by 34 in. illustrated spread explains how The Trane Co.'s "Climate Changer" air conditioning equipment can cut the cost of living and provide more comfort and better health for the home owner. Illustrations show an average family enjoying the comforts of summer air conditioning — unimpaired appetites, good sleeping, reduction in housework and increase in family "togetherness." Also shown are typical applications of "Climate Changer" equipment, which may be added to an existing warm air heating system or installed independently of the heating system. It is suggested that if only a heating system is to be installed at the present time, provision should be made for later addition of summer air conditioning equipment.

The heavily corroded panel was not Bonderized; the virtually undamaged panel was. The panels were scratched and then subjected to the A.S.T.M. standard salt-spray test. In the finish over Bonderite, rust stopped at the scratch-mark — but it spread extensively over the other panel.

Continuous 8-day salt-spray test proves prime advantage of Milcor Steel Roof Deck

Cut on-the-job damage with Milcor Bonderized Deck

Prime paint that withstands salt spray for 192 hours certainly can take the wear and tear of shipping, storage, and erection. This often damages ordinary factory-applied primer.

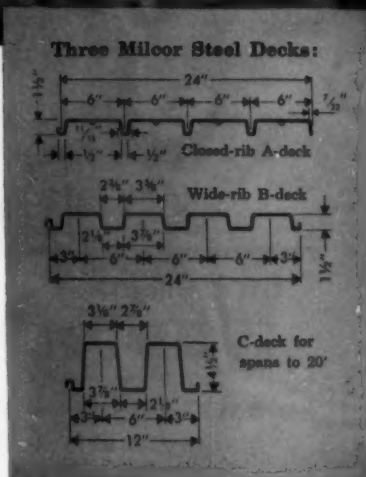
Milcor deck is Bonderized, fortified against corrosion. Then it is flow-coated with an epoxy-resin enamel, oven-baked to abrasion-resistant hardness — for the most durable finish ever applied to roof deck!

A Milcor deck job is trouble-free and profitable for other reasons, also: Sheets are 24" wide and as long as 28' 6" — you get fast coverage. Die-set ends make fitting easier, more rapid.

Get the full story. Write today for catalog 240.

MILCOR[®] Steel Roof Deck

INLAND STEEL PRODUCTS COMPANY Member of the Inland Steel Family
DEPT. 1, 4023 WEST BURNHAM STREET, MILWAUKEE 1, WISCONSIN
ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DALLAS, DENVER, DETROIT,
KANSAS CITY, LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS, ST. PAUL.



Milcor high-strength B-deck safely carries normal loads over spans up to 10'. Wide rib-openings help to make welding from above easier and faster.



appointments . . .

► **JAMES H. BINGER**, vice president of Minneapolis-Honeywell Regulator Co., as a member of the firm's board of directors. Mr. Binger, who is responsible for the management of the Temperature Controls Group, has been with the company since 1943.



James H. Binger



H. C. Siler

► **H. C. SILER** as general sales manager of Utility Appliance Corp. Mr. Siler, who has been western division sales manager in Los Angeles, will supervise all field salesmen for "Gaffers & Sattler," "Mission," and "Utility" products.

► **JOHN G. SCHUTZ** as general sales manager of Research Products Corp. E. F. Rothe has been named assistant general sales manager.



Martin J. Wisehart



William W. Suggs Jr.

► **MARTIN J. WISEHART** as a district sales manager for residential and commercial equipment for Iron Fireman Mfg. Co. He will cover parts of Ohio and Indiana. William W. Suggs Jr. has been appointed district sales manager for the Columbus, O., trading area.

► **BERT A. GRENBERG** as director of sales of the Industrial Div., National Lock Co. For the past 20 years Mr. Grenberg has been industrial hardware sales manager.

► **T. J. D. DUNPHY** as manager of marketing services for the air conditioning division of Westinghouse Electric Corp. In this position, Mr. Dunphy will be responsible for market planning, sales training, order service, sales finance administration, advertising and sales promotion. C. E. Cannon, previously director of sales training, has been named manager of sales pro-

INTRODUCING . . .

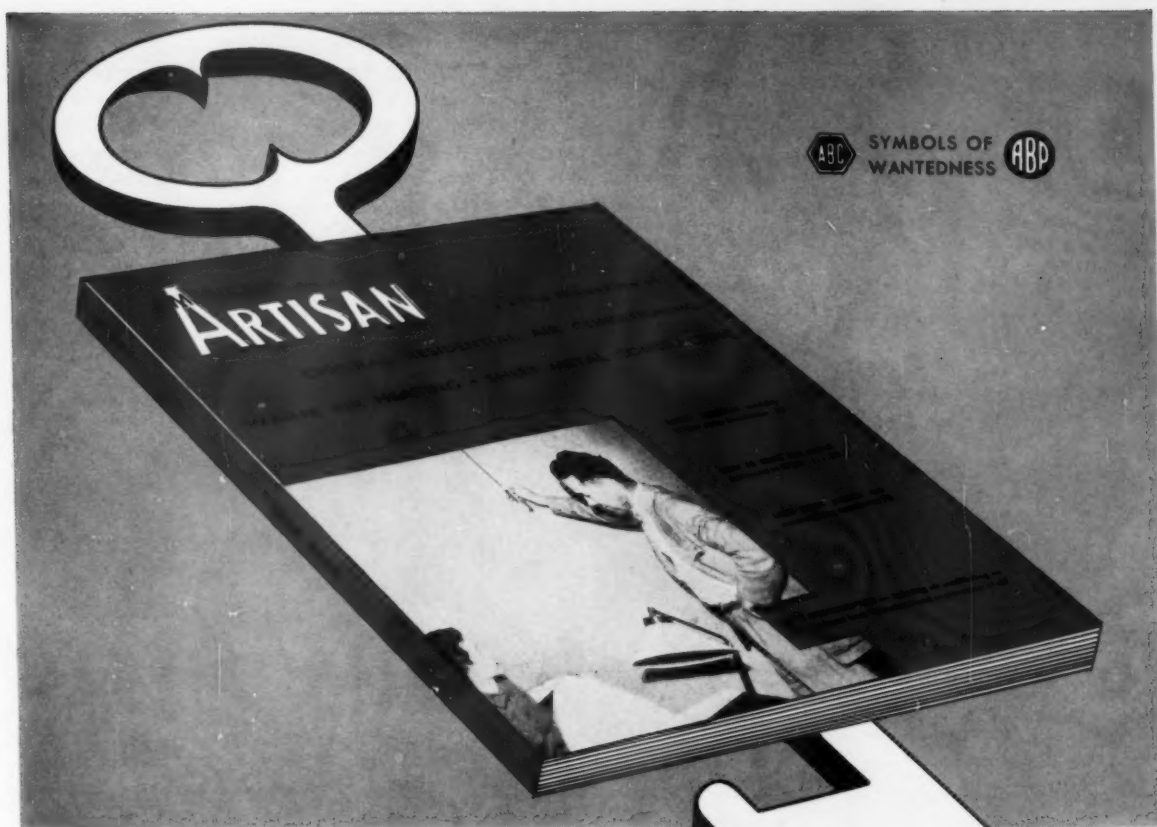
and only America's First Completely STAINLESS STEEL HUMIDIFIER

the
Vaporite No. 999

- New styling for greater sales appeal.
- Re-engineered to avoid troublesome "callbacks".
- Tested and proved for longer service-free performance.
- Water leveling type.
- New type diaphragm seat.
- Adjustable to water pressure level.
- Competitively priced.
- Guaranteed.



- Complete stainless construction.
- Full length non-breakable evaporating plates (optional equipment).
- Shipped completely assembled for easy, fast installation.



THIS is the book for reaching the KEY factors in

**CENTRAL RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING
SHEET METAL CONTRACTING**

Check . . . and you'll see! 75 to 80% of the total business in Central Residential Air Conditioning, Warm Air Heating, and Sheet Metal Contracting is done by 20 to 25% of the dealers and contractors. These are the KEY dealer-contractors—the concentration of buying power reached so effectively, so provably *only* in AMERICAN ARTISAN. Get the facts on this KEY book, its 100% paid circulation, and the big market it opens up for you. Write us today.

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KEENEY PUBLISHING CO. AIR CONDITIONING HEADQUARTERS

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Every Oil Heating System
needs an

Auto flo Fuel Oil Filter



**FOR
POSITIVE
PROTECTION**

- All Wool Felt Cartridge with Staggered Fin Design provides maximum filtering surface. Traps moisture and impurities of microscopic size.
- One-Piece Bowl Construction eliminates connection leaks at bottom
- Hexagon Extensions for fast, easy installation at tank or burner
- Standard and King Sizes to handle every size oil heating system

**BEST
FOR THE JOB,
BEST FOR YOU**

Super Design plus Competitive Price
add up to Bigger Profits for You! Mail
coupon below for the complete story.

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12085 Dixie Street, Detroit 39, Michigan

Please send me full information on:

☐ Auto-Flo Fuel Oil Filter ☐ Auto-Flo Automatic Humidifier

Name

Address

City Zone State

appointments

(Continued)

motion and training and will assume responsibility for sales promotion and publicity. National advertising programs will remain under Mr. Dunphy's supervision, but all other advertising and sales promotion efforts will be under Mr. Cannon's direction.

► **O. WILLIAM SMITH** as manager of the metals department of Limbach Co. In his new position, Mr. Smith will be responsible for all design, fabrication and erection of various architectural and ornamental metal work performed by the metals department.



O. William Smith



M. F. McMeel

► **M. F. McMEEL** as head of heating control sales to distributors for the Appliance Control Dept., General Electric Co. Responsible for over 100 distributor service centers, Mr. McMeel will coordinate the efforts of a staff of 21 service specialists located throughout the country.

► **HARRY J. CASE** as manager, residential "Climate Changer" sales, for The Trane Co. Mr. Case, former manager, jobber sales, succeeds William Lindsay, who has been named manager, packaged equipment sales. L. E. Daniel has been appointed manager of the jobber sales department. Named manager of the company's sales office in Seattle is William F. Dudek, who has been with the firm since 1956.

► **SYLVAN E. LEINWAND** as eastern regional manager for Detroit Controls Div., American-Standard. Mr. Leinwand will have headquarters at Stratford, Conn. He joined the division in 1948.

► **COMER F. HAMPTON** as Atlanta district manager for F. J. Evans Engineering Co. He will be responsible for the sales of "Janitrol" heating and air conditioning equipment in the southeastern section of the country.

► **JOHN R. MACDOWELL** as sales manager of the Ohio Foundry and Mfg. Co. Mr. MacDowell will supervise sales of the company's "Brilliant Fire" gas heating products.

► **KENNETH J. THOMPSON** as sales promotion manager, packaged products, for the York Div., Borg-

Warner Corp. Caron N. Eehalt has been appointed manager of advertising and sales promotion services.

► **CHARLES M. TOELAER**, formerly sales manager for Engelhard Industries, Inc., as division manager of the Jackson & Church Div., York-Shipley, Inc. Prior to joining the Engelhard firm, Mr. toeLaer was associated with the Home Heating and Cooling Department of General Electric Co. for 18 years. In his new position, he will have responsibility for planning new design, engineering and sales programs. Richard J. Hoover has been named general sales manager and will head the division's field sales force.



Charles M. toeLaer



George H. Blank

► **GEORGE H. BLANK** as sales manger of the Buffalo plant of Joseph T. Ryerson & Son, Inc. He succeeds Clive C. Earle, who recently assumed a similar post at the company's Philadelphia plant. Mr. Blank has been with the firm since 1946.

► **FRANK W. OWEN** as a district sales manager for Stewart-Warner Corp.'s Heating and Air Conditioning Div. Mr. Owen will cover parts of Illinois, Kentucky, Tennessee and Missouri.



Frank W. Owen



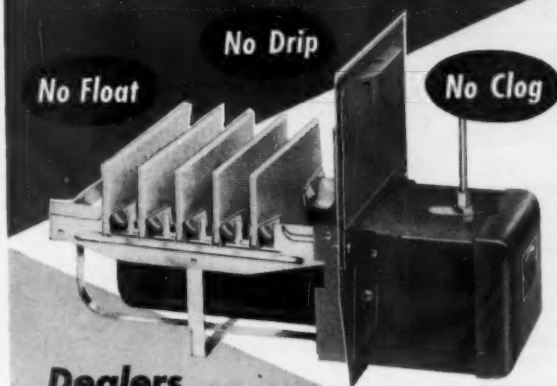
Robert D. Bright

► **ROBERT D. BRIGHT** as a district manager for the Lima Register Co. Mr. Bright will cover Ohio and surrounding states. He succeeds Joe Hanger, who recently resigned to enter private business.

► **RICHARD R. PRASSE** as a sales representative for the Home Products Div., Rheem Mfg. Co. Mr. Prasse was formerly an industrial salesman with the Chicago branch of Crane Co.

► **HAVSCO, INC.**, New York City, as sales representative for Cambridge Filter Corp., covering the greater

Again...
TOP SELLER IN 1958
Auto flo "150"
AUTOMATIC HUMIDIFIER



**Dealers
prefer *Auto flo*
for all these reasons:**

- Large, Clog-Free Orifice Replaces Troublesome Needle and Float Valves
- No Moving Parts to Wear or Need Adjustment
- 50% Greater Humidifying Capacity
- Fast Installation in Every Type Furnace and Bonnet. And no Call Backs—Enjoy Your Profits



**MIRACLE FIBERGLASS
EVAPORATOR PLATES**

- ★ Pick-Up More Water ★ Evaporate More Water ★ More Pores for Longer Life ★ Built-In Sacrificial Anode
- Protects Pan ★ Rustproof
- Drain Clips Prevent Drip

**unbreakable
feather-lite**

MORE and BIGGER PROFITS
with the Auto flo "150" Automatic Humidifier
Write for Complete Information Today

AUTO-FLO CORPORATION

12085 Dixie Street, Detroit 39, Michigan

Please send me full information on:

☐ Auto-Flo Fuel Oil Filter ☐ Auto-Flo Automatic Humidifier

Name

Address

City Zone State

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NEW! EXTRUDED ALUMINUM SHUTTERS

Shutters of modern design which give you all of these features: Lightweight, Full Weather Strip, Low Freight Cost, Easier Installation, Concealed Pivot Pins, Rust and corrosion Proof and Natural aluminum finish with fluted frames.

Write for complete specifications.



Free
CATALOG

ELGO SHUTTER & MANUFACTURING COMPANY
2736 W. Warren Detroit 8, Michigan



SWIVEL HEAD SQUEEZE TONGS
For closing Government box lock connection on duct work and all standing seams. Swivel head makes tongs usable on all four sides, in either vertical or horizontal position.

for a complete
line of **HANDY
TOOLS AND
EQUIPMENT**
... 500

CLEAT DRIVE NOTCHER
Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.



P.O. Box 5035
Newark 5, N.J.

REINER & CAMPBELL CO., INC.

appointments

(Continued)

New York area. Other new sales representatives are Associated Air Products, East Orange, N. J. — northern New Jersey; Vernon S. Tupper Co., Nashville, Tenn. — central Tennessee; Flinn Engineering Co., Memphis — western Tennessee, Arkansas and northern Mississippi; W. O. Chrissinger Co., Columbus, O. — Columbus area; Consolidated Supply Co., Inc., Baltimore — Maryland.

► **WALTER B. GERHARDT** as factory representative in the Chicago area for Viking Air Products Div., National-U. S. Radiator Corp.

CLIP PUNCH ►

For fastening slips or seams on ducts. Will push a "half moon" thru 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.



QUICK SET DIVIDERS ►

Fastest, most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.



Look Better — Last Longer
Superior workmanship and finish in heavy-gauge metal assures installations of lasting beauty. Most designs stamped in any thickness, up to one-fourth inch, from any metal. Catalog No. 38 illustrates all designs and gives complete working data. Free on request.

Diamond Manufacturing Co.
Box 34 Wyoming, Pa.
Sales Representatives in most principal cities.
Consult your Classified Telephone Directory.

Hard to
SODER —
Metals

Aluminum, Cast Iron
Stainless Steel
Galvanized Metals



FLUXES
SODERING
BRAZING & WELDING
L. B. ALLEN CO. INC. Chicago 31, Ill.
9302 BERENICE, SCHILLER PARK, ILL.

PEXTO HEAVY-DUTY SQUARING SHEARS

A RUGGED
SHEAR



A new heavy-duty 10 foot Power Shear.
Six models from 4 to 10 foot capacities.

Send for Bulletin No. 60.

THE PECK, STOW & WILCOX COMPANY, SOUTHINGTON, CONN. U.S.A.



ORNAMENTS

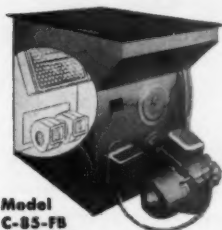
STAMPINGS & SPINNINGS
Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.



Model
C-85-FB
OIL-FIRED
85,000 Btu
Output



Get the complete story . . .
CALL, WRITE OR WIRE NOW:

FLOOR FURNACE with a FILTER

ONLY G/A HAS THESE ADVANTAGES

- 30" HIGH . . . 16 1/2" below joist.
- INSULATED JACKET
- CIRCULATED, FILTERED AIR
- QUIET OPERATION
- RETURN AIR OPENING . . . to facilitate a return-duct if used.
- EASY ACCESS . . . for filter removal or furnace service from top.
- PRE-ASSEMBLED & WIRED

GENERAL AUTOMATIC PRODUCTS
CORPORATION

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Eastern 7-7703

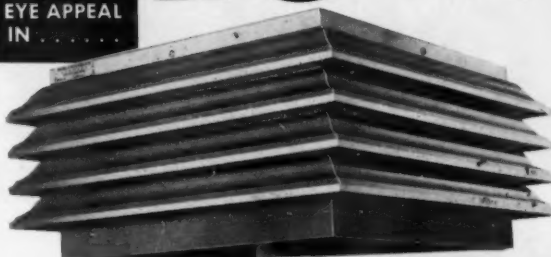
MANUFACTURERS OF
**FURNACE PIPE
AND FITTINGS,**
Prefabricated Ducts,
also conductor pipe, eaves
trough, drip edge, rake strip, etc.



THOR METAL PRODUCTS CO., INC.
Box 218 Eastwood Station Syracuse, N. Y.

ALL
FUNCTIONAL
FEATURES
PLUS
EYE APPEAL
IN

Low Silhouette



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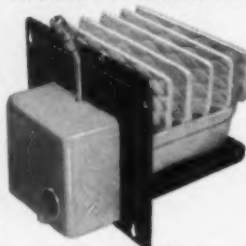
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DEFENSOR 904



HUMIDIFIERS



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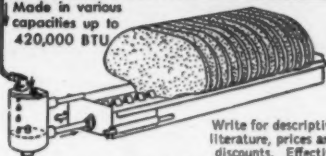
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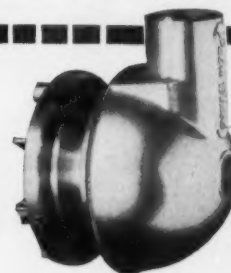


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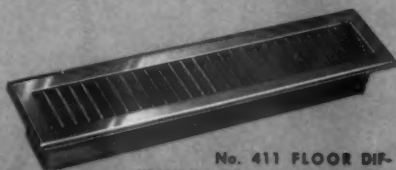
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2 IMPORTANT FACTS for all users of H & C PRODUCTS



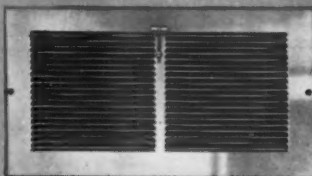
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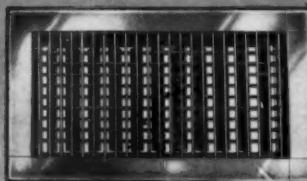
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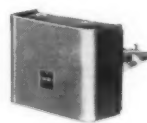
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